

STIC-Biotech/ChemLib

169622

MS

From: Seharaseyon, Jegatheesan  
Sent: Wednesday, October 26, 2005 10:45 AM  
To: STIC-Biotech/ChemLib  
Subject: Re: 10/719472

Importance: High

Please search SEQ ID NO: 2 and 3 in commercial databases.

Thanks,  
Seyon.

J. Seharaseyon  
Art Unit 1647  
Remsen 4C61  
Mailbox 4C70  
Phone: (571)-272-0892  
Fax: (571)-273-0892

RECEIVED  
OCT 26 2005  
STIC/CHEN, DYLE ET  
(STIC)

\*\*\*\*\*

Searcher: \_\_\_\_\_  
Searcher Phone: \_\_\_\_\_  
Date Searcher Picked up: \_\_\_\_\_  
Date completed: \_\_\_\_\_  
Searcher Prep Time: \_\_\_\_\_  
Online Time: \_\_\_\_\_

\*\*\*\*\*

Type of Search  
NA# \_\_\_\_\_ AA# \_\_\_\_\_  
S/L: \_\_\_\_\_ Oligomer: \_\_\_\_\_  
Encode/Transl: \_\_\_\_\_  
Structure #: \_\_\_\_\_ Text: \_\_\_\_\_  
Inventor: \_\_\_\_\_ Litigation: \_\_\_\_\_

\*\*\*\*\*

Vendors and cost where applicable  
STN: \_\_\_\_\_  
DIALOG: \_\_\_\_\_  
QUESTEL/ORBIT: \_\_\_\_\_  
LEXIS/NEXIS: \_\_\_\_\_  
SEQUENCE SYSTEM: \_\_\_\_\_  
WWW/Internet: \_\_\_\_\_  
Other (Specify): \_\_\_\_\_

THIS PAGE BLANK

GenCore version 5.1.6  
Copyright (c) 1993 - 2005 Compugen Ltd.

OM protein - protein search, using sw model

Run on: October 28, 2005, 14:51:03 ; Search time 24.5 Seconds  
(without alignments)  
524.067 Million cell updates/sec

Title: US-10-719-472-2

Perfect score: 907

Sequence: 1 CYLSRKLMLDARENKLLDR.....TVSTTLQKRLTKWGDLSNP 172

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Issued Patents AA:\*

- 1: /cgn2\_6/prodata/1/iaa/5A COMB.pep:\*\*
- 2: /cgn2\_6/prodata/1/iaa/5B COMB.pep:\*\*
- 3: /cgn2\_6/prodata/1/iaa/6A COMB.pep:\*\*
- 4: /cgn2\_6/prodata/1/iaa/6B COMB.pep:\*\*
- 5: /cgn2\_6/prodata/1/iaa/PCUS COMB.pep:\*\*
- 6: /cgn2\_6/prodata/1/iaa/backfiles1.pcp:\*\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	907	100.0	172	1	US-08-438-753B-2
2	907	100.0	172	1	US-08-443-883A-2
3	907	100.0	172	2	US-08-631-328-2
4	907	100.0	172	2	US-08-455-524B-2
5	907	100.0	172	2	US-08-455-021B-2
6	907	100.0	172	3	US-09-045-467-2
7	907	100.0	172	3	US-08-954-395A-18
8	907	100.0	172	3	US-08-616-904-2
9	900	99.2	172	4	US-09-599-413-2
10	898	99.0	172	4	US-09-599-413-7
11	896	98.8	172	4	US-09-599-413-9
12	896	98.8	172	4	US-09-599-413-18
13	896	98.8	172	4	US-09-599-413-20
14	895	98.7	172	4	US-09-599-413-4
15	894	98.6	172	4	US-09-599-413-5
16	894	98.6	172	4	US-09-599-413-10
17	894	98.6	172	4	US-09-599-413-19
18	892	98.3	172	4	US-09-599-413-6
19	890	98.1	172	4	US-09-599-413-8
20	857.5	94.5	196	4	US-09-487-792-12
21	857.5	94.5	196	4	US-09-308-594-12
22	723	79.7	195	4	US-09-487-792-11
23	723	79.7	195	4	US-09-308-594-11
24	612	67.5	172	1	US-08-438-753B-4
25	612	67.5	172	1	US-08-438-753B-44
26	612	67.5	172	1	US-08-443-883A-4
27	612	67.5	172	1	US-08-443-883A-44

28	612	67.5	172	2	US-08-631-328-4	Sequence 4, Appl
29	612	67.5	172	2	US-08-631-328-44	Sequence 44, Appl
30	612	67.5	172	2	US-08-455-524B-4	Sequence 4, Appl
31	612	67.5	172	2	US-08-455-524B-44	Sequence 44, Appl
32	612	67.5	172	2	US-08-455-021B-4	Sequence 4, Appl
33	612	67.5	172	2	US-08-455-021B-44	Sequence 44, Appl
34	612	67.5	172	3	US-09-045-467-4	Sequence 4, Appl
35	612	67.5	172	3	US-09-045-467-44	Sequence 44, Appl
36	612	67.5	172	3	US-08-616-904-4	Sequence 4, Appl
37	612	67.5	172	3	US-08-438-753B-12	Sequence 12, Appl
38	612	67.5	195	1	US-08-443-883A-12	Sequence 12, Appl
39	612	67.5	195	2	US-08-631-328-12	Sequence 12, Appl
40	612	67.5	195	2	US-08-455-524B-12	Sequence 12, Appl
41	612	67.5	195	2	US-08-455-021B-12	Sequence 12, Appl
42	612	67.5	195	3	US-09-045-467-12	Sequence 12, Appl
43	604	66.6	171	1	US-08-438-753B-30	Sequence 30, Appl
44	604	66.6	171	1	US-08-443-883A-30	Sequence 30, Appl
45	604	66.6	171	2	US-08-631-328-30	Sequence 30, Appl

ALIGNMENTS

RESULT 1  
US-08-438-753B-2  
; Sequence 2, Application US/08438753B  
; Patent No. 5705363  
; GENERAL INFORMATION:  
; APPLICANT: Inakawa, Kazuhito  
; TITLE OF INVENTION: Interferon Tau Compositions and  
; TITLE OF INVENTION: Methods of Use  
; NUMBER OF SEQUENCES: 44  
; CORRESPONDENCE ADDRESS:  
; ADDRESSER: Dehlinger & Associates  
; STREET: 350 Cambridge Ave., Suite 250  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patent In Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/438,753B  
; FILING DATE: 10-MAY-1995  
; CLASSIFICATION: 435  
; PRIOR APPLICATION DATA:  
; PRIOR APPLICATION NUMBER: US 08/139,891  
; FILING DATE: 19-OCT-1993  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/847,741  
; FILING DATE: 09-MAR-1992  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/318,050  
; FILING DATE: 02-MAR-1989  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/969,890  
; FILING DATE: 30-OCT-1992  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Sholtz, Charles K.  
; REGISTRATION NUMBER: 38,615  
; REFERENCE/DOCKET NUMBER: 5600-0001.30  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 415-324-0880  
; TELEFAX: 415-324-0960  
; INFORMATION FOR SEQ ID NO: 2:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 172 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein

ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: amino acid sequence of a mature  
INDIVIDUAL ISOLATE: Ovifntau protein  
US-08-438-753B-2

Query Match 100.0%; Score 907; DB 1; Length 172;  
Best Local Similarity 100.0%; Pred. No. 4.6e-100;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYLSRKMLDARENKLLDRNRLSPHSCLOQRKDFGLPQEMVEGDQLOKQOAFPVLYEM 60  
DB 1 CYLSRKMLDARENKLLDRNRLSPHSCLOQRKDFGLPQEMVEGDQLOKQOAFPVLYEM 60  
QY 61 LQOSFNLFTYHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
DB 61 LQOSFNLFTYHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTTSVTTLQKRLTKMGDLNSP 172  
DB 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTTSVTTLQKRLTKMGDLNSP 172

RESULT 2

US-08-443-883A-2  
Sequence 2, Application US/08443883A  
Patent No. 5738845

GENERAL INFORMATION:  
APPLICANT: Bazer, Fuller W.  
APPLICANT: Johnson, Howard M.  
APPLICANT: Pontzer, Carol H.  
APPLICANT: Ott, Troy L.  
APPLICANT: Van Heeke, Gino  
APPLICANT: Inakawa, Kazuhito  
TITLE OF INVENTION: Interferon Tau Compositions and  
TITLE OF INVENTION: Methods of Use  
NUMBER OF SEQUENCES: 44  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Dehlinger & Associates  
STREET: 350 Cambridge Ave., Suite 250  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306

COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/443,883A  
FILING DATE:

CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/139,891  
FILING DATE: 19-OCT-1993  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 07/847,741  
FILING DATE: 09-MAR-1992  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 07/318,050  
FILING DATE: 02-MAR-1989  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 07/969,890  
FILING DATE: 30-OCT-1992  
ATTORNEY/AGENT INFORMATION:  
NAME: Fabian, Gary R.  
REGISTRATION NUMBER: 33,875  
REFERENCE/DOCKET NUMBER: 5600-0001.30  
TELEPHONE: 415-324-0880  
TELEFAX: 415-324-0960  
INFORMATION FOR SEQ ID NO: 2:  
SEQUENCE CHARACTERISTICS:

LENGTH: 172 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: amino acid sequence of a mature  
INDIVIDUAL ISOLATE: Ovifntau protein  
US-08-443-883A-2

Query Match 100.0%; Score 907; DB 1; Length 172;  
Best Local Similarity 100.0%; Pred. No. 4.6e-100;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CYLSRKMLDARENKLLDRNRLSPHSCLOQRKDFGLPQEMVEGDQLOKQOAFPVLYEM 60  
DB 1 CYLSRKMLDARENKLLDRNRLSPHSCLOQRKDFGLPQEMVEGDQLOKQOAFPVLYEM 60  
QY 61 LQOSFNLFTYHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
DB 61 LQOSFNLFTYHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTTSVTTLQKRLTKMGDLNSP 172  
DB 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTTSVTTLQKRLTKMGDLNSP 172

RESULT 3

US-08-631-328-2  
Sequence 2, Application US/08631328  
Patent No. 5939286

GENERAL INFORMATION:  
APPLICANT: Johnson, Howard M.  
APPLICANT: Pontzer, Carol H.  
APPLICANT: Subramaniam, Prem S.  
TITLE OF INVENTION: Hybrid Interferon Compositions and  
TITLE OF INVENTION: Methods of Use  
NUMBER OF SEQUENCES: 55  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Dehlinger & Associates  
STREET: 350 Cambridge Ave., Suite 250  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306

COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/631,328  
FILING DATE: 12-APR-1996  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/438,753  
FILING DATE: 10-MAY-1995  
ATTORNEY/AGENT INFORMATION:  
NAME: Sholtz, Charles K.  
REGISTRATION NUMBER: 38,615  
REFERENCE/DOCKET NUMBER: 5600-0001.34  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 415-324-0880  
TELEFAX: 415-324-0960  
INFORMATION FOR SEQ ID NO: 2:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 172 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: amino acid sequence of a mature  
INDIVIDUAL ISOLATE: Ovifntau protein  
US-08-631-328-2

```
Query Match 100.0%; Score 907; DB 2; Length 172;
Best Local Similarity 100.0%; Pred. No. 4.6e-100;
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYLSRKMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKQDAFPVLYEM 60
DB 1 CYLSRKMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKQDAFPVLYEM 60
QY 61 LQOSFNLFTYHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
DB 61 LQOSFNLFTYHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTVTSTTLOKRLTKMGDGLNSP 172
DB 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTVTSTTLOKRLTKMGDGLNSP 172

RESULT 4
US-08-455-524B-2
; Sequence 2, Application US/08455524B
; Patent No. 5942223
; GENERAL INFORMATION:
; APPLICANT: Bazer, Fuller W.
; APPLICANT: Johnson, Howard M.
; APPLICANT: Pontzer, Carol H.
; APPLICANT: Ott, Troy L.
; APPLICANT: Van Heeke, Gino
; TITLE OF INVENTION: Interferon Tau Compositions and
; TITLE OF INVENTION: Methods of Use
; NUMBER OF SEQUENCES: 44
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Dehlinger & Associates
; STREET: 350 Cambridge Ave., Suite 250
; CITY: Palo Alto
; STATE: CA
; COUNTRY: USA
; ZIP: 94306
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent in Release #1.0, Version #1.25
; CURRENT APPLICATION NUMBER: US/08/455,524B
; FILING DATE: 10-MAY-1995
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/438,753
; FILING DATE: 10-MAY-1995
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/139,891
; FILING DATE: 19-OCT-1993
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/847,741
; FILING DATE: 09-MAR-1992
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/318,050
; FILING DATE: 02-MAR-1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/969,890
; FILING DATE: 30-OCT-1992
; ATTORNEY/AGENT INFORMATION:
; NAME: Sholtz, Charles K.
; REGISTRATION NUMBER: 38,615
; REFERENCE/DOCKET NUMBER: 5600-0001.32
; TELEPHONE: 415-324-0880
; TELEFAX: 415-324-0960
; INFORMATION FOR SEQ ID NO: 2:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 172 amino acids
; TYPE: amino acid
```

```
TOPOLOGY: linear
MOLECULE TYPE: protein
ORIGINAL SOURCE:
INDIVIDUAL ISOLATE: amino acid sequence of a mature
INDIVIDUAL ISOLATE: Ovipentau protein
US-08-455-524B-2

Query Match 100.0%; Score 907; DB 2; Length 172;
Best Local Similarity 100.0%; Pred. No. 4.6e-100;
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYLSRKMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKQDAFPVLYEM 60
DB 1 CYLSRKMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKQDAFPVLYEM 60
QY 61 LQOSFNLFTYHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
DB 61 LQOSFNLFTYHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTVTSTTLOKRLTKMGDGLNSP 172
DB 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTVTSTTLOKRLTKMGDGLNSP 172

RESULT 5
US-08-455-021B-2
; Sequence 2, Application US/08455021B
; GENERAL INFORMATION:
; APPLICANT: Bazer, Fuller W.
; APPLICANT: Johnson, Howard M.
; APPLICANT: Pontzer, Carol H.
; APPLICANT: Ott, Troy L.
; APPLICANT: Van Heeke, Gino
; TITLE OF INVENTION: Interferon Tau Compositions and
; TITLE OF INVENTION: Methods of Use
; NUMBER OF SEQUENCES: 44
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Dehlinger & Associates
; STREET: 350 Cambridge Ave., Suite 250
; CITY: Palo Alto
; STATE: CA
; COUNTRY: USA
; ZIP: 94306
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent in Release #1.0, Version #1.25
; CURRENT APPLICATION NUMBER: US/08/455,021B
; FILING DATE: 31-MAY-1995
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/139,891
; FILING DATE: 19-OCT-1993
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/847,741
; FILING DATE: 09-MAR-1992
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/318,050
; FILING DATE: 02-MAR-1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/969,890
; FILING DATE: 30-OCT-1992
; ATTORNEY/AGENT INFORMATION:
; NAME: Sholtz, Charles K.
; REGISTRATION NUMBER: 38,615
; REFERENCE/DOCKET NUMBER: 5600-0001.31
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 415-324-0880
; TELEFAX: 415-324-0960
; INFORMATION FOR SEQ ID NO: 2:
; TYPE: amino acid
```



LENGTH: 172 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
IMMEDIATE SOURCE:  
LIBRARY: GenBank Accessn. Y00287, PID g1358  
CLONE: Ovine IFN-tau, mature protein  
US-08-954-395A-18

Query Match  
Best Local Similarity 100.0%; Score 907; DB 3; Length 172;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYLSRKMLDARENKLLDRMNRSLPHSCLOQRKDFGLPQEMVEGDQLOKQDAFFVLYEM 60  
DB 1 CYLSRKMLDARENKLLDRMNRSLPHSCLOQRKDFGLPQEMVEGDQLOKQDAFFVLYEM 60

QY 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120  
DB 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120

QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALT VSTTLQKRLTKMGDDLNSP 172  
DB 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALT VSTTLQKRLTKMGDDLNSP 172

RESULT 8  
US-08-616-904-2  
Sequence 2, Application US/08616904  
Patent No. 6372206  
GENERAL INFORMATION:  
APPLICANT: Soos, Jeanne M.  
APPLICANT: Schiffbauer, Joel  
APPLICANT: Johnson, Howard M.  
TITLE OF INVENTION: Orally-Administered Interferon-Tau  
TITLE OF INVENTION: Compositions and Methods  
NUMBER OF SEQUENCES: 6  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Dehlinger & Associates  
STREET: 350 Cambridge Ave., Suite 250  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent In Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/616,904  
FILING DATE: 15-MAR-1996  
CLASSIFICATION: 514  
ATTORNEY/AGENT INFORMATION:  
NAME: Sholtz, Charles K.  
REGISTRATION NUMBER: 38,615  
REFERENCE/DOCKET NUMBER: 5600-0003  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 415-324-0880  
TELEFAX: 415-324-0960  
INFORMATION FOR SEQ ID NO: 2:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 172 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: amino acid sequence of a mature  
INDIVIDUAL ISOLATE: OviFntau protein  
US-08-616-904-2

Query Match  
Best Local Similarity 100.0%; Score 907; DB 3; Length 172;

Best Local Similarity 100.0%; Pred. No. 4.6e-100;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYLSRKMLDARENKLLDRMNRSLPHSCLOQRKDFGLPQEMVEGDQLOKQDAFFVLYEM 60  
DB 1 CYLSRKMLDARENKLLDRMNRSLPHSCLOQRKDFGLPQEMVEGDQLOKQDAFFVLYEM 60

QY 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120  
DB 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120

QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALT VSTTLQKRLTKMGDDLNSP 172  
DB 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALT VSTTLQKRLTKMGDDLNSP 172

RESULT 9  
US-09-599-413-2  
Sequence 2, Application US/09599413  
Patent No. 6833256  
GENERAL INFORMATION:  
APPLICANT: Pontzer, Carol H  
TITLE OF INVENTION: Interferon Tau Mutants and Methods for Making Them  
FILE REFERENCE: Interferon tau  
CURRENT APPLICATION NUMBER: US/09/599,413  
CURRENT FILING DATE: 2000-06-22  
PRIOR APPLICATION NUMBER: 60/140,411  
PRIOR FILING DATE: 1999-06-22  
NUMBER OF SEQ ID NOS: 20  
SOFTWARE: Patent In Ver. 2.1  
SEQ ID NO 2  
LENGTH: 172  
TYPE: PRT  
ORGANISM: ovine  
US-09-599-413-2

Query Match  
Best Local Similarity 99.2%; Score 900; DB 4; Length 172;  
Matches 171; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CYLSRKMLDARENKLLDRMNRSLPHSCLOQRKDFGLPQEMVEGDQLOKQDAFFVLYEM 60  
DB 1 CYLSRKMLDARENKLLDRMNRSLPHSCLOQRKDFGLPQEMVEGDQLOKQDAFFVLYEM 60

QY 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120  
DB 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120

QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALT VSTTLQKRLTKMGDDLNSP 172  
DB 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALT VSTTLQKRLTKMGDDLNSP 172

RESULT 10  
US-09-599-413-7  
Sequence 7, Application US/09599413  
Patent No. 6833256  
GENERAL INFORMATION:  
APPLICANT: Pontzer, Carol H  
TITLE OF INVENTION: Interferon Tau Mutants and Methods for Making Them  
FILE REFERENCE: Interferon tau  
CURRENT APPLICATION NUMBER: US/09/599,413  
CURRENT FILING DATE: 2000-06-22  
PRIOR APPLICATION NUMBER: 60/140,411  
PRIOR FILING DATE: 1999-06-22  
NUMBER OF SEQ ID NOS: 20  
SOFTWARE: Patent In Ver. 2.1  
SEQ ID NO 7  
LENGTH: 172  
TYPE: PRT  
ORGANISM: ovine  
US-09-599-413-7





US-09-599-413-4

	Query Match	98.7%;	Score 895;	DB 4;	Length 172;
	Best Local Similarity	98.8%;	Pred. No. 1.2e-98;		
	Matches 170;	Conservative 0;	Mismatches 2;	Indels 0;	Gaps 0;
Qy	1	CYLRSKULMLDARENLKLLDRWNRLSPHSCIQDRKDFGLPQEMVSGDLOKQDQAPFVLYEM	60		
Db	1	CYLRSKULMLDARRNLKLLDRWNRLSPHSCIQDRKDFGLPQEMVSGDLOKQDQAPFVLYEM	60		
Qy	61	LQOSFNLFYTEHSSAANDTTLLLEQLCTGLQQQLDHLDTCRGQVNGEEDSELGNMDPIVTV	120		
Db	61	LQOSFNLFYTEHSSAANDTTLLLEQLCTGLQQQLDHLDTCRGQNGEEDSELGNMDPIVTV	120		
Qy	121	KKYFQGIYDYLOEKGYSDCAWEIVRVEMRALTVSTTLQKRLTKMGDLNSP	172		
Db	121	KKYFOGIYDYLOEKGYSDCAWEIVRVEMRALTVSTTLQKRLTKMGDLNSP	172		

RESULT 15

```

US-09-599-413-5
; Sequence 5, Application US/09599413
; Patent No. 6833256
; GENERAL INFORMATION:
; APPLICANT: Pontzer, Carol H
; TITLE OF INVENTION: Interferon Tau Mutants and Methods for Making Them
; FILE REFERENCE: interferon tau
; CURRENT APPLICATION NUMBER: US/09/599,413
; CURRENT FILING DATE: 2000-06-22
; PRIOR APPLICATION NUMBER: 60/140,411
; PRIOR FILING DATE: 1999-06-22
; NUMBER OF SEQ ID NOS: 20
; SOFTWARE: Patentin Ver. 2.1
; SEQ ID NO 5
; LENGTH: 172
; TYPE: PRT
; ORGANISM: ovine
US-09-599-413-5

```

	Query Match	98.6%	Score 894;	DB 4;	Length 172;
	Best Local Similarity	99.8%	Pred. No. 1.6e-98;		
	Matches 170;	Conservative 0;	Mismatches 2;	Indels 0;	Gaps 0;
Qy	1	CYLSRKLMLDARENKLKLLDRMNRUSPHSCLCQDRKDFGLPQSMVSGDQLQKQOAPFVLYEM	60		
Db	1	CYLSRKLMLDARENKLLDRMNRUSPHSCLCQDRKDFGLPQSMVSGDQLQKQOAPFVLYEM	60		
Qy	61	LQGSFNLFFYTEHSSAANDTTLLEQLCTGLQOQLDHLDTCRGVNMGEEEDSELGNMDPIVTV	120		
Db	61	LQGSFNLFFYTEHSSAANDTTLLEQLCTGLQOQLDHLDTCRGVNMGEEEDSELGNMDPIVTV	120		
Qy	121	KKYFQGIYDYLQEKGYSDCAWEIIVRVEMRALTVSTTLQKRLTKMGDLNSP	172		
Db	121	KKYFOGIYDYLQEKGYSDCAWEIIVRVEMRALTVSTTLQKRLTKMGDLNSP	172		

Search completed: October 28, 2005, 15:01:47  
Job time : 25.5 secs

THIS PAGE BLANK (USPTO)

GenCore version 5.1.6  
Copyright (c) 1993 - 2005 Compugen Ltd.

OM protein - protein search, using sw model

Run on: October 28, 2005, 14:52:27 ; Search time 113 Seconds  
(without alignments)  
636.313 Million cell updates/sec

Title: US-10-719-472-2

Perfect score: 907

Sequence: 1 CVLSRKLMDARENLKLLDR.....TVSTTLQKRLTKWGDLSNP 172

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1865214 seqs, 418043040 residues

Total number of hits satisfying chosen parameters: 1865214

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Published Applications AA:\*

- 1: /cgn2\_6/ptodata/1/pubpaa/US07\_PUBCOMB.pep.\*
- 2: /cgn2\_6/ptodata/1/pubpaa/PCT\_NEW\_PUB.pep.\*
- 3: /cgn2\_6/ptodata/1/pubpaa/US05\_NEW\_PUB.pep.\*
- 4: /cgn2\_6/ptodata/1/pubpaa/US06\_PUBCOMB.pep.\*
- 5: /cgn2\_6/ptodata/1/pubpaa/US07\_NEW\_PUB.pep.\*
- 6: /cgn2\_6/ptodata/1/pubpaa/PTUS\_PUBCOMB.pep.\*
- 7: /cgn2\_6/ptodata/1/pubpaa/US08\_NEW\_PUB.pep.\*
- 8: /cgn2\_6/ptodata/1/pubpaa/US08\_PUBCOMB.pep.\*
- 9: /cgn2\_6/ptodata/1/pubpaa/US09\_PUBCOMB.pep.\*
- 10: /cgn2\_6/ptodata/1/pubpaa/US09B\_PUBCOMB.pep.\*
- 11: /cgn2\_6/ptodata/1/pubpaa/US09C\_PUBCOMB.pep.\*
- 12: /cgn2\_6/ptodata/1/pubpaa/US09\_NEW\_PUB.pep.\*
- 13: /cgn2\_6/ptodata/1/pubpaa/US10A\_PUBCOMB.pep.\*
- 14: /cgn2\_6/ptodata/1/pubpaa/US10B\_PUBCOMB.pep.\*
- 15: /cgn2\_6/ptodata/1/pubpaa/US10C\_PUBCOMB.pep.\*
- 16: /cgn2\_6/ptodata/1/pubpaa/US10D\_PUBCOMB.pep.\*
- 17: /cgn2\_6/ptodata/1/pubpaa/US10E\_PUBCOMB.pep.\*
- 18: /cgn2\_6/ptodata/1/pubpaa/US10F\_PUBCOMB.pep.\*
- 19: /cgn2\_6/ptodata/1/pubpaa/US11A\_PUBCOMB.pep.\*
- 20: /cgn2\_6/ptodata/1/pubpaa/US11\_NEW\_PUB.pep.\*
- 21: /cgn2\_6/ptodata/1/pubpaa/US60\_NEW\_PUB.pep.\*
- 22: /cgn2\_6/ptodata/1/pubpaa/US60\_PUBCOMB.pep.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	907	100.0	172	9	US-09-746-919-2
2	907	100.0	172	10	US-09-910-466C-2
3	907	100.0	172	14	US-10-029-890-2
4	907	100.0	172	15	US-10-346-269-2
5	907	100.0	172	15	US-10-346-269-3
6	907	100.0	172	15	US-10-694-247-2
7	907	100.0	172	16	US-10-683-214-1
8	907	100.0	172	16	US-10-719-472-2
9	907	100.0	172	16	US-10-825-068-2
10	907	100.0	172	17	US-10-884-741-2
11	907	100.0	172	17	US-10-825-382-2

12	907	100.0	172	17	US-10-825-457-2	Sequence 2, Appli
13	907	100.0	172	18	US-10-824-710-2	Sequence 2, Appli
14	907	100.0	172	18	US-10-991-653-2	Sequence 2, Appli
15	907	100.0	172	18	US-10-794-495-2	Sequence 2, Appli
16	907	100.0	172	20	US-11-078-608-2	Sequence 2, Appli
17	907	100.0	172	20	US-11-040-706-2	Sequence 2, Appli
18	899	99.1	172	10	US-09-910-406C-4	Sequence 4, Appli
19	899	99.1	172	16	US-10-683-214-2	Sequence 4, Appli
20	899	99.1	172	16	US-10-719-472-3	Sequence 3, Appli
21	899	99.1	172	16	US-10-825-068-3	Sequence 3, Appli
22	899	99.1	172	17	US-10-884-741-3	Sequence 3, Appli
23	899	99.1	172	17	US-10-825-382-3	Sequence 3, Appli
24	899	99.1	172	17	US-10-825-457-3	Sequence 3, Appli
25	899	99.1	172	18	US-10-824-710-3	Sequence 3, Appli
26	899	99.1	172	18	US-10-991-653-3	Sequence 3, Appli
27	899	99.1	172	20	US-11-078-608-3	Sequence 3, Appli
28	899	99.1	172	20	US-11-040-706-3	Sequence 3, Appli
29	857.5	94.5	196	9	US-09-908-594-12	Sequence 12, Appli
30	857.5	94.5	196	16	US-10-197-816-12	Sequence 12, Appli
31	786	86.7	152	16	US-10-676-705-90	Sequence 90, Appli
32	786	86.7	152	16	US-10-677-093-54	Sequence 54, Appli
33	786	86.7	152	17	US-10-820-467-47	Sequence 47, Appli
34	723	79.7	195	9	US-09-908-594-11	Sequence 11, Appli
35	723	79.7	195	16	US-10-197-816-11	Sequence 11, Appli
36	649	71.6	171	14	US-10-131-409-58	Sequence 58, Appli
37	649	71.6	171	15	US-10-139-854-58	Sequence 58, Appli
38	649	71.6	171	15	US-10-150-813-58	Sequence 58, Appli
39	649	71.6	171	15	US-10-150-811-58	Sequence 58, Appli
40	612	67.5	172	9	US-09-746-919-4	Sequence 4, Appli
41	612	67.5	172	9	US-09-746-919-4	Sequence 4, Appli
42	612	67.5	172	14	US-10-029-890-4	Sequence 4, Appli
43	612	67.5	172	15	US-10-694-247-4	Sequence 4, Appli
44	612	67.5	172	18	US-10-794-495-4	Sequence 4, Appli
45	612	67.5	172	18	US-10-794-495-44	Sequence 44, Appli

ALIGNMENTS

RESULT 1  
US-09-746-919-2  
; Sequence 2, Application US/09746919  
; Patent No. US20020013452A1  
; GENERAL INFORMATION:  
; APPLICANT: Johnson, Howard M.  
; APPLICANT: Pontzer, Carol H.  
; TITLE OF INVENTION: Interferon Tau Compositions and  
; NUMBER OF SEQUENCES: 44  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Dehlinger & Associates  
; STREET: 350 Cambridge Ave., Suite 250  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: PatentIn Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/09/746,919  
; FILING DATE:  
; CLASSIFICATION:  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 09/045,467  
; FILING DATE:  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 08/438,753  
; FILING DATE: 10-MAY-1995  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 08/139,891

```
/ FILING DATE: 19-OCT-1993
/ PRIOR APPLICATION DATA:
/ APPLICATION NUMBER: US 07/847,741
/ FILING DATE: 09-MAR-1992
/ PRIOR APPLICATION DATA:
/ APPLICATION NUMBER: US 07/318,050
/ FILING DATE: 02-MAR-1989
/ PRIOR APPLICATION DATA:
/ APPLICATION NUMBER: US 07/969,890
/ FILING DATE: 30-OCT-1992
/ ATTORNEY/AGENT INFORMATION:
/ NAME: Dehlinger, Peter J.
/ REGISTRATION NUMBER: 28,006
/ REFERENCE/DOCKET NUMBER: 5600-0001.36
/ TELECOMMUNICATION INFORMATION:
/ TELEPHONE: 650-324-0960
/ TELEFAX: 650-324-0960
/ INFORMATION FOR SEQ ID NO: 2:
/ SEQUENCE CHARACTERISTICS:
/ LENGTH: 172 amino acids
/ TYPE: amino acid
/ TOPOLOGY: linear
/ MOLECULE TYPE: protein
/ ORIGINAL SOURCE:
/ INDIVIDUAL ISOLATE: amino acid sequence of a mature
/ INDIVIDUAL ISOLATE: Ovifntau protein
US-09-746-919-2

Query Match 100.0%; Score 907; DB 9; Length 172;
Best Local Similarity 100.0%; Pred. No. 9.4e-89;
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYLSRKLMLDARENKLLDRNRLSPHSCLODRKDFGLPQEMVEGDQLQKQOAFPLYEM 60
DB 1 CYLSRKLMLDARENKLLDRNRLSPHSCLODRKDFGLPQEMVEGDQLQKQOAFPLYEM 60

QY 61 LQOSFNLFYTEHSSAAMDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
DB 61 LQOSFNLFYTEHSSAAMDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120

QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTTSVTTLOKRLTKMGGDLNSP 172
DB 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTTSVTTLOKRLTKMGGDLNSP 172

RESULT 3
US-10-029-890-2
/ Sequence 2, Application US/10029890
/ Publication No. US20030012766A1
/ GENERAL INFORMATION:
/ APPLICANT: Soos, Jeanne M.
/ Johnson, Howard M.
/ Schiffenbauer, Joel
/ TITLE OF INVENTION: Orally-Administered Interferon-Tau
/ NUMBER OF SEQUENCES: 6
/ CORRESPONDENCE ADDRESS:
/ ADDRESS: Dehlinger & Associates
/ STREET: 350 Cambridge Ave., Suite 250
/ CITY: Palo Alto
/ STATE: CA
/ COUNTRY: USA
/ ZIP: 94306
/ COMPUTER READABLE FORM:
/ MEDIUM TYPE: Floppy disk
/ OPERATING SYSTEM: PC-DOS/MS-DOS
/ SOFTWARE: PatentIn Release #1.0, Version #1.25
/ CURRENT APPLICATION DATA:
/ APPLICATION NUMBER: US/10/029,890
/ FILING DATE: 21-Dec-2001
/ CLASSIFICATION: <Unknown>
/ PRIOR APPLICATION DATA:
/ APPLICATION DATA: US/08/616,904
/ FILING DATE: 15-MAR-1996
/ ATTORNEY/AGENT INFORMATION:
/ NAME: Sholtz, Charles K.
/ REGISTRATION NUMBER: 38,615
/ REFERENCE/DOCKET NUMBER: 5600-0003
/ TELECOMMUNICATION INFORMATION:
/ TELEPHONE: 415-324-0880
/ TELEFAX: 415-324-0960
/ INFORMATION FOR SEQ ID NO: 2:
/ SEQUENCE CHARACTERISTICS:
/ LENGTH: 172 amino acids
/ TYPE: amino acid
/ TOPOLOGY: linear
/ MOLECULE TYPE: protein
/ ORIGINAL SOURCE:
/ INDIVIDUAL ISOLATE: amino acid sequence of a mature
/ INDIVIDUAL ISOLATE: Ovifntau protein
/ SEQUENCE DESCRIPTION: SEQ ID NO: 2:
US-10-029-890-2

Query Match 100.0%; Score 907; DB 14; Length 172;
Best Local Similarity 100.0%; Pred. No. 9.4e-89;
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYLSRKLMLDARENKLLDRNRLSPHSCLODRKDFGLPQEMVEGDQLQKQOAFPLYEM 60
DB 1 CYLSRKLMLDARENKLLDRNRLSPHSCLODRKDFGLPQEMVEGDQLQKQOAFPLYEM 60

QY 61 LQOSFNLFYTEHSSAAMDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
DB 61 LQOSFNLFYTEHSSAAMDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
```



Db 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALT VSTTLQKRLTKMGDLSNP 172  
|||||

## RESULT 7

US-10-683-214-1  
; Sequence 1, Application US/10683214  
; Publication No. US20040126360A1  
; GENERAL INFORMATION:  
; APPLICANT: Manning, Mark C.  
; APPLICANT: Nayar, Rajiv  
; TITLE OF INVENTION: Oral formulations for proteins and polypeptides  
; FILE REFERENCE: 55600-8014.US00  
; CURRENT APPLICATION NUMBER: US/10/683,214  
; CURRENT FILING DATE: 2003-10-07  
; PRIOR APPLICATION NUMBER: US 60/417,292  
; PRIOR FILING DATE: 2002-10-09  
; NUMBER OF SEQ ID NOS: 18  
; SOFTWARE: PatentIn version 3.1  
; SEQ ID NO 1  
; LENGTH: 172  
; TYPE: PRT  
; ORGANISM: Ovis aries  
US-10-683-214-1

Query Match 100.0%; Score 907; DB 16; Length 172;  
Best Local Similarity 100.0%; Pred. No. 9.4e-89;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
  
Qy 1 CYLSRKLMDARENKLLDRMRLSPHSCLQDRKDFGLPQEMVEGDQLQKQOAFPVLYEM 60  
Db 1 CYLSRKLMDARENKLLDRMRLSPHSCLQDRKDFGLPQEMVEGDQLQKQOAFPVLYEM 60  
  
Qy 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
Db 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
  
Qy 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALT VSTTLQKRLTKMGDLSNP 172  
Db 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALT VSTTLQKRLTKMGDLSNP 172  
|||||

## RESULT 8

US-10-719-472-2  
; Sequence 2, Application US/10719472  
; Publication No. US20040191217A1  
; GENERAL INFORMATION:  
; APPLICANT: Sokawa, Yoshihiro  
; APPLICANT: Liu, Chih-Ping  
; TITLE OF INVENTION: Method of treatment using interferon-tau  
; FILE REFERENCE: 55600-8013.US00  
; CURRENT APPLICATION NUMBER: US/10/719,472  
; CURRENT FILING DATE: 2003-11-21  
; PRIOR APPLICATION NUMBER: US/10/698,927  
; PRIOR FILING DATE: 2003-10-31  
; PRIOR APPLICATION NUMBER: US 09/910,406  
; PRIOR FILING DATE: 2001-07-19  
; PRIOR APPLICATION NUMBER: US 60/219,128  
; PRIOR FILING DATE: 2000-07-19  
; PRIOR APPLICATION NUMBER: US 10/346,269  
; PRIOR FILING DATE: 2003-01-16  
; PRIOR APPLICATION NUMBER: US 60/349,658  
; PRIOR FILING DATE: 2002-01-16  
; NUMBER OF SEQ ID NOS: 4  
; SOFTWARE: PatentIn version 3.1  
; SEQ ID NO 2  
; LENGTH: 172  
; TYPE: PRT  
; ORGANISM: Ovis aries  
US-10-719-472-2

Query Match 100.0%; Score 907; DB 16; Length 172;  
Best Local Similarity 100.0%; Pred. No. 9.4e-89;

Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
  
Qy 1 CYLSRKLMDARENKLLDRMRLSPHSCLQDRKDFGLPQEMVEGDQLQKQOAFPVLYEM 60  
Db 1 CYLSRKLMDARENKLLDRMRLSPHSCLQDRKDFGLPQEMVEGDQLQKQOAFPVLYEM 60  
  
Qy 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
Db 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
  
Qy 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALT VSTTLQKRLTKMGDLSNP 172  
Db 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALT VSTTLQKRLTKMGDLSNP 172  
|||||

## RESULT 9

US-10-825-068-2  
; Sequence 2, Application US/10825068  
; Publication No. US20040247565A1  
; GENERAL INFORMATION:  
; APPLICANT: Liu, Chih-Ping  
; APPLICANT: Villarete, Lorelie H.  
; TITLE OF INVENTION: Method of Treatment Using Interferon-TAU  
; FILE REFERENCE: 55600-8014.US03  
; CURRENT APPLICATION NUMBER: US/10/825,068  
; CURRENT FILING DATE: 2004-04-14  
; PRIOR APPLICATION NUMBER: US 60/552,279  
; PRIOR FILING DATE: 2004-03-10  
; NUMBER OF SEQ ID NOS: 4  
; SOFTWARE: PatentIn version 3.1  
; SEQ ID NO 2  
; LENGTH: 172  
; TYPE: PRT  
; ORGANISM: Ovis aries  
US-10-825-068-2

Query Match 100.0%; Score 907; DB 16; Length 172;  
Best Local Similarity 100.0%; Pred. No. 9.4e-89;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
  
Qy 1 CYLSRKLMDARENKLLDRMRLSPHSCLQDRKDFGLPQEMVEGDQLQKQOAFPVLYEM 60  
Db 1 CYLSRKLMDARENKLLDRMRLSPHSCLQDRKDFGLPQEMVEGDQLQKQOAFPVLYEM 60  
  
Qy 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
Db 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
  
Qy 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALT VSTTLQKRLTKMGDLSNP 172  
Db 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALT VSTTLQKRLTKMGDLSNP 172  
|||||

## RESULT 10

US-10-884-741-2  
; Sequence 2, Application US/10884741  
; Publication No. US20050084478A1  
; GENERAL INFORMATION:  
; APPLICANT: Liu, Chih-Ping  
; APPLICANT: Villarete, Lorelie H.  
; TITLE OF INVENTION: Method of Treatment Using Interferon-TAU  
; FILE REFERENCE: 55600-8014.US00  
; CURRENT APPLICATION NUMBER: US/10/884,741  
; CURRENT FILING DATE: 2004-07-02  
; PRIOR APPLICATION NUMBER: US/10/824,710  
; PRIOR FILING DATE: 2004-04-14  
; PRIOR APPLICATION NUMBER: US 60/552,279  
; PRIOR FILING DATE: 2004-03-10  
; NUMBER OF SEQ ID NOS: 4  
; SOFTWARE: PatentIn version 3.1  
; SEQ ID NO 2  
; LENGTH: 172  
; TYPE: PRT  
US-10-884-741-2

```
; ORGANISM: Ovis aries
US-10-884-741-2

Query Match      100.0%; Score 907; DB 17; Length 172;
Best Local Similarity 100.0%; Pred. No. 9.4e-89;
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYSRLKMLDARENKLLDRMNLSPHSCLODRKDFGLPQEMVEGDLQKQDQAFVLYEM 60
Db 1 CYSRLKMLDARENKLLDRMNLSPHSCLODRKDFGLPQEMVEGDLQKQDQAFVLYEM 60

QY 61 LQOSFNLFTYHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
Db 61 LQOSFNLFTYHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120

QY 121 KKYFGIYDYLQKGYSDCAWEIVRVMRALTVTSTLQKRLTKMGDDLNSP 172
Db 121 KKYFGIYDYLQKGYSDCAWEIVRVMRALTVTSTLQKRLTKMGDDLNSP 172

RESULT 11
US-10-825-382-2
; Sequence 2, Application US/10825382
; Publication No. US20050118137A1
; GENERAL INFORMATION:
; APPLICANT: Villarete, Lorelie H.
; TITLE OF INVENTION: Method of Treatment Using Interferon-TAU
; FILE REFERENCE: 55600-8014.US01
; CURRENT APPLICATION NUMBER: US/10/825,382
; PRIOR FILING DATE: 2004-04-14
; PRIOR APPLICATION NUMBER: US 60/552,279
; NUMBER OF SEQ ID NOS: 4
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 2
; LENGTH: 172
; TYPE: PRT
; ORGANISM: Ovis aries
US-10-825-382-2

Query Match      100.0%; Score 907; DB 17; Length 172;
Best Local Similarity 100.0%; Pred. No. 9.4e-89;
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYSRLKMLDARENKLLDRMNLSPHSCLODRKDFGLPQEMVEGDLQKQDQAFVLYEM 60
Db 1 CYSRLKMLDARENKLLDRMNLSPHSCLODRKDFGLPQEMVEGDLQKQDQAFVLYEM 60

QY 61 LQOSFNLFTYHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
Db 61 LQOSFNLFTYHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120

QY 121 KKYFGIYDYLQKGYSDCAWEIVRVMRALTVTSTLQKRLTKMGDDLNSP 172
Db 121 KKYFGIYDYLQKGYSDCAWEIVRVMRALTVTSTLQKRLTKMGDDLNSP 172

RESULT 12
US-10-825-457-2
; Sequence 2, Application US/10825457
; Publication No. US20050118138A1
; GENERAL INFORMATION:
; APPLICANT: Villarete, Lorelie H.
; TITLE OF INVENTION: Method of Treatment Using Interferon-TAU
; FILE REFERENCE: 55600-8014.US02
; CURRENT APPLICATION NUMBER: US/10/825,457
; PRIOR FILING DATE: 2004-04-14
; PRIOR APPLICATION NUMBER: US 60/552,279
; NUMBER OF SEQ ID NOS: 4
; SOFTWARE: PatentIn version 3.1
```

```
; SEQ ID NO 2
; LENGTH: 172
; TYPE: PRT
; ORGANISM: Ovis aries
US-10-825-457-2

Query Match      100.0%; Score 907; DB 17; Length 172;
Best Local Similarity 100.0%; Pred. No. 9.4e-89;
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYSRLKMLDARENKLLDRMNLSPHSCLODRKDFGLPQEMVEGDLQKQDQAFVLYEM 60
Db 1 CYSRLKMLDARENKLLDRMNLSPHSCLODRKDFGLPQEMVEGDLQKQDQAFVLYEM 60

QY 61 LQOSFNLFTYHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
Db 61 LQOSFNLFTYHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120

QY 121 KKYFGIYDYLQKGYSDCAWEIVRVMRALTVTSTLQKRLTKMGDDLNSP 172
Db 121 KKYFGIYDYLQKGYSDCAWEIVRVMRALTVTSTLQKRLTKMGDDLNSP 172

RESULT 13
US-10-824-710-2
; Sequence 2, Application US/10824710
; Publication No. US20050142109A1
; GENERAL INFORMATION:
; APPLICANT: Liu, Chih-Ping
; APPLICANT: Villarete, Lorelie H.
; TITLE OF INVENTION: Method of Treatment Using Interferon-TAU
; FILE REFERENCE: 55600-8014.US00
; CURRENT APPLICATION NUMBER: US/10/824,710
; CURRENT FILING DATE: 2004-04-14
; PRIOR APPLICATION NUMBER: US 60/552,279
; PRIOR FILING DATE: 2004-03-10
; NUMBER OF SEQ ID NOS: 4
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 2
; LENGTH: 172
; TYPE: PRT
; ORGANISM: Ovis aries
US-10-824-710-2

Query Match      100.0%; Score 907; DB 18; Length 172;
Best Local Similarity 100.0%; Pred. No. 9.4e-89;
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYSRLKMLDARENKLLDRMNLSPHSCLODRKDFGLPQEMVEGDLQKQDQAFVLYEM 60
Db 1 CYSRLKMLDARENKLLDRMNLSPHSCLODRKDFGLPQEMVEGDLQKQDQAFVLYEM 60

QY 61 LQOSFNLFTYHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
Db 61 LQOSFNLFTYHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120

QY 121 KKYFGIYDYLQKGYSDCAWEIVRVMRALTVTSTLQKRLTKMGDDLNSP 172
Db 121 KKYFGIYDYLQKGYSDCAWEIVRVMRALTVTSTLQKRLTKMGDDLNSP 172

RESULT 14
US-10-991-653-2
; Sequence 2, Application US/10991653
; Publication No. US20050147588A1
; GENERAL INFORMATION:
; APPLICANT: Liu, Chih-Ping
; APPLICANT: Lopez, Henry W.
; TITLE OF INVENTION: Methods for Treatment of Obesity and for Promotion of Weight Loss
; FILE REFERENCE: 55600-8012.US01
; CURRENT APPLICATION NUMBER: US/10/991,653
; CURRENT FILING DATE: 2004-11-17
; PRIOR APPLICATION NUMBER: US 60/523,077
```

```

; PRIOR FILING DATE: 2003-11-17
; PRIOR APPLICATION NUMBER: US 60/532,851
; PRIOR FILING DATE: 2003-12-24
; NUMBER OF SEQ ID NOS: 4
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 2
; LENGTH: 172
; TYPE: PRT
; ORGANISM: Ovis Aries
US-10-991-653-2

```

	Query Match	100.0%;	Score 907;	DB 18;	Length 172;
	Best Local Similarity	100.0%;	Pred. No. 9,4e-89;		
	Matches 172;	Conservative 0;	Mismatches 0;	Indels 0;	Gaps 0;
Qy	1	CYLRSKLMLDARENKLLDRNNRLSPHSCIQDRKDFGLPOEMWEGDQLQKDQAAPVLYEM	60		
Db	1	CYLRSKLMLDARENKLLDRNNRLSPHSCIQDRKDFGLPOEMWEGDQLQKDQAAPVLYEM	60		
Qy	61	LQOSFNLFFYTEHSSAAWDTTLLLEOLCTGLQOQLDHLDTCRGVNMGEEEDSELGNMDPIVTV	120		
Db	61	LQOSFNLFFYTEHSSAAWDTTLLLEOLCTGLQOQLDHLDTCRGVNMGEEEDSELGNMDPIVTV	120		
Qy	121	KKYFQGIYDYLQBGKGYSDCAWEIVRVEMMRALTVTSTTLQRLRTKXGGLNSP	172		
Db	121	KKYFQGIYDYLQBGKGYSDCAWEIVRVEMMRALTVTSTTLQRLRTKXGGLNSP	172		

## RESULT 15

US-10-794-495-2 ; Sequence 2, Application US/10794495  
; Publication No. US20040146989A1

ADDITIONAL INFORMATION: 052004

APPLICANT: Johnson, Howard M.  
Pontzer, Carol H.

FOURZER, CAROL H.	FOURZER, CAROL H.
TITLE OF INVENTION: Interferon Tau Compositions and Methods of Use	TITLE OF INVENTION: Interferon Tau Compositions and Methods of Use

NUMBER OF SEQUENCES: 44

NUMBER OF SEQUENCES: 44  
CORRESPONDENCE ADDRESS:

**CORRESPONDENCE ADDRESS:**  
**ADDRESSEE: Dehlinger & Associates**

ADDRESSEE: DENTINGER & ASSOCIATES  
STREET: 350 Cambridge Ave., Suite 250

SIRE: 330 Cam  
CITY: Palo Alto

CLY: PAIO  
STATE. CA

STATE: CA  
COUNTRY: USACOUNTRY: USA  
ZTD: 94306; ZIP: 94306  
; COMPUTER READABLE FORM.

```

; COMPUTER READABLE FORM:
; MEDIUM TYPE: E10000 disk

```

```

;
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible

```

COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS

```
;
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0 Version #1.25
```

```
; SOFTWARE: Patent Release #1.0,  
; CURRENT APPLICATION DATA.
```

```

;
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: 08/10/2004 405

```

APPLICATION NUMBER: US/10/

FILING DATE: 03-Mar-2004

```

;
;
CLASSIFICATION: <UNCLASSIFIED>

```

;  
;  
PRIOR APPLICATION DATA:

APPLICATION NUMBER: US/09/045,467

FILING DATE: 20-Mar-1998

APPLICATION NUMBER: US 08/455,021

FILING DATE: 31-MAY-1995

APPLICATION NUMBER: US 08/438,753

FILING DATE: 10-MAY-1995

; APPLICATION NUMBER: US 08/139,891

FILING DATE: 19-OCT-1993

APPLICATION NUMBER: US 07/847,741

FILING DATE: 09-MAR-1992

APPLICATION NUMBER: US 07/318,050

FILING DATE: 02-MAR-1989

APPLICATION NUMBER: US 07/969,890

FILING DATE: 30-OCT-19

**ATTORNEY/AGENT INFORMATION:**

NAME: Dehlinger, Peter J.

REGISTRATION NUMBER: 28,006



GenCore version 5.1.6  
Copyright (c) 1993 - 2005 Compugen Ltd.

OM protein - protein search, using sw model

Run on: October 28, 2005, 14:48:06 ; Search time 121 Seconds  
(without alignments)  
549.775 Million cell updates/sec

Title: US-10-719-472-3

Perfect score: 907

Sequence: 1 CYLSRLMLDARENKLLDR.....TVSTTLQKRLTRMGDLNSP 172

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : A\_Geneseq\_16Dec04:\*  
1: Geneseq1980s:\*  
2: Geneseq1990s:\*  
3: Geneseq2000s:\*  
4: Geneseq2001s:\*  
5: Geneseq2002s:\*  
6: Geneseq2003as:\*  
7: Geneseq2003bs:\*  
8: Geneseq2004s:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	907	100.0	172	5	Abb07589 Recombina
2	907	100.0	172	8	Adm79178 Mature ov
3	907	100.0	172	8	Adsl3614 Recombina
4	901	99.3	195	2	Aar24941 Sequence
5	901	99.3	195	2	Aar24945 Sequence
6	899	99.1	172	2	Aar54768 Sheep int
7	899	99.1	172	2	Aar99397 Ovine tau
8	899	99.1	172	2	Aaw31698 Mature ov
9	899	99.1	172	2	Aaw44110 Mature ov
10	899	99.1	172	5	Abb07588 Ovine int
11	899	99.1	172	7	Adil7857 Mature ov
12	899	99.1	172	8	Adm79177 Mature ov
13	899	99.1	172	8	Adsl3613 Sheep int
14	899	99.1	195	2	Aar04540 Ovine tro
15	898	99.0	195	2	Aar24944 Sequence
16	897	98.9	172	2	Aar09294 Ovine tro
17	897	98.9	172	8	Adm79195 Interfero
18	896	98.8	195	2	Aar24942 Sequence
19	894	98.6	172	4	Aab31466 An ovine
20	892	98.3	172	4	Aab31457 Amino aci
21	892	98.3	172	5	Aao21461 Ovine int
22	890	98.1	172	4	Aab31462 An ovine
23	889	98.0	172	4	Aab31467 An ovine
24	888	97.9	172	4	Aab31468 An ovine
25	888	97.9	172	4	Aab31464 An ovine

26	887	97.8	172	4	AAB31459	Aab31459 An ovine
27	887	97.8	195	1	AAP91396	Aap91396 Isoform o
28	886	97.7	172	4	AAB31465	Aab31465 An ovine
29	886	97.7	172	4	AAB31460	Aab31460 An ovine
30	884	97.5	172	4	AAB31461	Aab31461 An ovine
31	882	97.2	172	4	AAB31463	Aab31463 An ovine
32	882	97.2	195	2	AAR24943	Aar24943 Sequence
33	861.5	95.0	196	4	AAB49784	Aab49784 Ovi Tp-1
34	861.5	95.0	196	4	ADF94976	Adf94976 Sheep IFN
35	778	85.8	152	8	ADS16363	Adsl6363 Human int
36	727	80.2	195	4	AAB49783	Aab49783 Bovine TP
37	727	80.2	195	5	AB808641	Ab808641 Bovine in
38	727	80.2	195	7	ADF94975	Adf94975 Bovine IF
39	724	79.8	195	2	AAR04539	Aar04539 cDNA clon
40	699	77.1	173	2	AAW70809	Aaw70809 A tau mod
41	653	72.0	171	7	ADG42697	Adg42697 Human int
42	653	72.0	171	7	ADJ55766	Adj55766 Peptide.h
43	653	72.0	171	8	ADM76604	Adm76604 Human NOV
44	648	71.4	173	2	AAW70808	Aaw70808 A tau mod
45	633	69.8	173	2	AAW56435	Aaw56435 Amino aci

ALIGNMENTS

RESULT 1

ABB07589  
ID ABB07589 standard; protein; 172 AA.  
XX  
AC ABB07589;  
XX  
DT 08-MAY-2002 (first entry)  
XX  
DE Recombinant ovine interferon-tau protein.  
XX  
KW Hepatitis C virus; HCV infection; ovine; interferon-tau; ovIFN-tau; OAS;  
2',5'-oligoadenylate synthetase; virucide; hepatotropic; IFN-tau.  
XX  
OS Ovis aries.  
XX  
PN WO200206343-A2.  
XX  
PD 24-JAN-2002.  
XX  
PF 19-JUL-2001; 2001WO-US022976.  
XX  
PR 19-JUL-2000; 2000US-02191289.  
17-OCT-2000; 2000JP-00317160.  
(PEFG-) PEPGEN CORP.  
Sokawa Y, Liu C;  
WPI; 2002-179784/23.  
N-PSDB; ABA94937.  
Oral-delivery composition for treating conditions relating to hepatitis caused by hepatitis C virus, comprises ovine interferon-tau which stimulates bloodstream levels of 2',5'-oligoadenylate synthetase.  
Example 1; Page 33; 33pp; English.  
The invention provides an oral-delivery composition for use in treating hepatitis C virus (HCV) in a HCV-infected patient. The composition comprises ovine interferon-tau (ovIFN-tau) in a dosage effective to stimulate bloodstream levels of 2',5'-oligoadenylate synthetase (OAS). The ovIFN-tau synthesizes OAS which degrades viral mRNA. A method is also provided for monitoring the treatment of HCV by oral administration of ovIFN-tau, by measuring the blood levels of OAS prior to and after such oral administration, and if necessary, adjusting the dose of IFN-tau until a measurable increase in blood OAS level, relative to the level observed prior to administration. The composition is useful for treating hepatitis caused by HCV and the method is useful for monitoring treatment

CC of HCV by oral administration of ovIFN-tau. The present sequence  
CC represents a recombinant ovine interferon-tau protein  
XX Sequence 172 AA;

Query Match 100.0%; Score 907; DB 5; Length 172;  
Best Local Similarity 100.0%; Pred. No. 6.6e-92;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CYLSERLMLDARENKLLDRNRLSPHSCLOQRKDFGLPQEMVEGDQLQKQAFPLVYEM 60  
DB 1 CYLSERLMLDARENKLLDRNRLSPHSCLOQRKDFGLPQEMVEGDQLQKQAFPLVYEM 60  
QY 61 LQOSFNLFYTEHSSAANDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
DB 61 LQOSFNLFYTEHSSAANDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
QY 121 KKYFGQIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDLNSP 172  
DB 121 KKYFGQIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDLNSP 172

RESULT 2  
ADM79178  
ID ADM79178 standard; protein; 172 AA.  
AC ADM79178;  
XX  
DT 15-JUL-2004 (first entry)  
DE Mature ovine interferon tau variant protein SEQ ID NO:2.  
DE oral administration; interferon; IFN; ovine; mature interferon tau;  
KW variant.  
KW  
XX  
XX Ovis aries.  
OS Synthetic.  
XX  
XX WO2004032863-A2.  
XX  
XX 22-APR-2004.  
XX  
XX 08-OCT-2003; 2003WO-US031999.  
XX  
XX 09-OCT-2002; 2002US-0417292P.  
XX (PEPG-) PEPGEN CORP.  
XX  
XX Manning MC, Nayar R;  
XX  
XX WPI; 2004-340799/31.  
XX  
XX  
XX A composition for oral administration of an interferon (IFN) comprises an  
XX IFN and a species that stabilizes the IFN in an active form by  
XX interaction between the interferon and the species.  
XX  
XX Example; SEQ ID NO 2; 52pp; English.

XX The present invention describes a composition for the oral administration  
XX of an interferon (IFN) comprising an IFN and a species that stabilises  
XX the IFN in an active form by interaction between the IFN and the species.  
XX Also described: (1) preparing a protein for oral administration,  
XX comprising formulating the protein with a species that stabilises the  
XX protein in an active form by binding interaction between the protein and  
XX the species; therefore the formulating results in a composition for oral  
XX administration; and (2) selecting a dosage form composition for a protein  
XX that achieves protein stabilisation for biological activity upon in vivo  
XX administration, comprising selecting a protein for formulation, preparing  
XX solutions of the selected protein or polypeptide in different buffers at  
XX different pH values, and measuring the effect of the buffer on the  
XX protein's tertiary structure, where the measuring identifies buffers that  
XX result retention of the protein's tertiary structure. The composition and  
XX methods are useful for preparing oral dosage forms for administration of

CC proteins and polypeptides. The present sequence represents a mature ovine  
CC interferon tau variant amino acid sequence where positions 5 and 6 have  
CC been modified, which is used in an example from the present invention.  
XX Sequence 172 AA;

Query Match 100.0%; Score 907; DB 8; Length 172;  
Best Local Similarity 100.0%; Pred. No. 6.6e-92;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CYLSERLMLDARENKLLDRNRLSPHSCLOQRKDFGLPQEMVEGDQLQKQAFPLVYEM 60  
DB 1 CYLSERLMLDARENKLLDRNRLSPHSCLOQRKDFGLPQEMVEGDQLQKQAFPLVYEM 60  
QY 61 LQOSFNLFYTEHSSAANDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
DB 61 LQOSFNLFYTEHSSAANDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
QY 121 KKYFGQIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDLNSP 172  
DB 121 KKYFGQIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDLNSP 172

RESULT 3  
ADS13614  
ID ADS13614 standard; protein; 172 AA.  
XX  
AC ADS13614;  
XX  
DT 16-DEC-2004 (first entry)  
DE Recombinant sheep interferon tau seqid 3.  
DE  
XX  
XX immunosuppressive; cytostatic; virucide; neuroprotective; antidiabetic;  
KW muscular; antiinflammatory; antineumatic; antiarthritic; antiasthmatic;  
KW dermatological; vaccine; interferon tau; 2',5'-oligoadenylate synthetase;  
KW OAS; autoimmune condition; cancer; viral infection; multiple sclerosis;  
KW hepatitis C infection; diabetes mellitus; systemic lupus erythematosus;  
KW amyotrophic lateral sclerosis; Crohn's disease; rheumatoid arthritis;  
KW asthma; uveitis; psoriasis; hypersensitivity disorder; sheep.  
XX  
XX Ovis aries.  
OS Synthetic.  
XX  
XX Key Location/Qualifiers  
XX Misc-difference 5 /note= "Wild type Arg substituted by Glu"  
XX Misc-difference 6 /note= "Wild type Lys substituted by Arg"  
XX  
XX US2004191217-A1.  
XX  
XX 30-SEP-2004.  
XX  
XX 21-NOV-2003; 2003US-00719472.  
XX  
XX 19-JUL-2000; 2000US-0219128P.  
XX 19-JUL-2001; 2001US-00910406.  
XX 16-JAN-2002; 2002US-0349658P.  
XX 16-JAN-2003; 2003US-00346269.  
XX 31-OCT-2003; 2003US-00698927.  
XX (SOKA/) SOKAWA Y.  
XX (LIUC/) LIU C.  
XX  
XX Sokawa Y, Liu C;  
XX  
XX WPI; 2004-698654/68.  
XX N-PSDB; ADS13615.  
XX  
XX Treating a condition in a subject, e.g. autoimmune condition, cancer or  
XX viral infection, comprises orally administering interferon-tau to the  
XX intestinal tract to increase the blood 2',5'-oligoadenylate synthetase

PT level.  
 XX Claim 2; SEQ ID NO 3; 38pp; English.  
 XX  
 XX The invention describes a method of treating a condition in a human  
 CC subject responsive to interferon tau therapy comprises orally  
 CC administering interferon-tau to the intestinal tract of the subject to  
 CC produce an initial measurable increase in the subject's blood 2',5'-  
 CC oligoadenylate synthetase (OAS) level, relative to the blood OAS level in  
 CC the subject in the absence of interferon-tau administration. The method  
 CC is useful for treating an autoimmune condition, cancer, or a viral  
 CC infection. The method is particularly useful for treating multiple  
 CC sclerosis or hepatitis C infection, diabetes mellitus, systemic lupus  
 CC erythematosus, amyotrophic lateral sclerosis, Crohn's disease, rheumatoid  
 CC arthritis, asthma, uveitis, psoriasis, and hypersensitivity disorders.  
 CC This is the amino acid sequence of recombinant ovine interferon-tau in  
 CC which the residues at positions 5 and 6 have been altered to Glu and Arg  
 CC relative to the wild type Arg and Lys.  
 XX  
 XX Sequence 172 AA;

Query Match 100.0%; Score 907; DB 8; Length 172;  
 Best Local Similarity 100.0%; Pred. No. 6.6e-92;  
 Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 CYLSERLMLDARENKLLDRMNRSLSPHSCLQDRKDFGLPQEWVEGDQLKQDQAFPVLYEM 60  
 DB 1 CYLSERLMLDARENKLLDRMNRSLSPHSCLQDRKDFGLPQEWVEGDQLKQDQAFPVLYEM 60  
 QY 61 LQOSFNLFYTEHSSAAMDITLLLEQLCTGLQOQLDHLDTCRGQVMGEDESELGNMDFIVTV 120  
 DB 61 LQOSFNLFYTEHSSAAMDITLLLEQLCTGLQOQLDHLDTCRGQVMGEDESELGNMDFIVTV 120  
 QY 121 KYFQGIYDYLOEKGYSDCAWEIVRVEMMRALTIVSTTLQKRLTKMGDDLNSP 172  
 DB 121 KYFQGIYDYLOEKGYSDCAWEIVRVEMMRALTIVSTTLQKRLTKMGDDLNSP 172

RESULT 4  
 AAR24941  
 ID AAR24941 standard; protein; 195 AA.  
 XX  
 AC AAR24941;  
 XX  
 XX 25-MAR-2003 (revised)  
 DT 03-JAN-1992 (first entry)  
 XX  
 DE Sequence of ovine trophoblastin.  
 XX  
 XX Antiviral; antiinflammatory; antitumour; immunomodulator; immunogen;  
 KW trophoblastin; antiluteolytic agent.  
 XX  
 OS Ammotragus lervia.  
 XX  
 FH Key Location/Qualifiers  
 FT Peptide 1..23  
 FT /label= signal  
 XX  
 XX WO9209691-A1.  
 XX  
 PD 11-JUN-1992.  
 XX  
 XX 29-NOV-1991; 91WO-FR000953.  
 XX  
 XX 29-NOV-1990; 90FR-00014945.  
 PR 29-NOV-1990; 90FR-00014946.  
 XX  
 XX (INRG ) INRA INST NAT RECH AGRONOMIQUE.  
 PA  
 XX Martal J, Degryse E, Gaye P, Charlier M, Charpigny G, Reinaud P;  
 PI Chaouat G;  
 XX WPI; 1992-217070/26.  
 DR

XX New type I interferon variants with added N-terminal di:peptide - include  
 PT expression cassettes providing high yield in yeast, esp. trophoblast  
 PT derivs. with e.g. anti-luteolytic activity.  
 XX  
 XX Disclosure; Fig 1; 53pp; French.  
 XX  
 XX The DNA sequence encoding the precursor of ovine trophoblastin was  
 CC disclosed in PCT WO 89/08706 (see AAR24941). AAR24942-R24945 are isoforms  
 CC of trophoblastin. They have anti-luteolytic activity and are used to  
 CC improve survival of transplanted embryos; as a reagent for detecting  
 CC viability of embryos at an early stage of its development; and to improve  
 CC the fertility of livestock. (Updated on 25-MAR-2003 to correct PN field.)  
 XX  
 XX Sequence 195 AA;  
 SQ  
 Query Match 99.3%; Score 901; DB 2; Length 195;  
 Best Local Similarity 98.8%; Pred. No. 3.6e-91;  
 Matches 170; Conservative 2; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 CYLSERLMLDARENKLLDRMNRSLSPHSCLQDRKDFGLPQEWVEGDQLKQDQAFPVLYEM 60  
 DB 24 CYLSERLMLDARENKLLDRMNRSLSPHSCLQDRKDFGLPQEWVEGDQLKQDQAFPVLYEM 83  
 QY 61 LQOSFNLFYTEHSSAAMDITLLLEQLCTGLQOQLDHLDTCRGQVMGEDESELGNMDFIVTV 120  
 DB 84 LQOSFNLFYTEHSSAAMDITLLLEQLCTGLQOQLDHLDTCRGQVMGEDESELGNMDFIVTV 143  
 QY 121 KYFQGIYDYLOEKGYSDCAWEIVRVEMMRALTIVSTTLQKRLTKMGDDLNSP 172  
 DB 144 KYFQGIYDYLOEKGYSDCAWEIVRVEMMRALTIVSTTLQKRLTKMGDDLNSP 195  
 RESULT 5  
 AAR24945  
 ID AAR24945 standard; protein; 195 AA.  
 XX  
 AC AAR24945;  
 XX  
 XX 25-MAR-2003 (revised)  
 DT 03-JAN-1992 (first entry)  
 XX  
 DE Sequence of ovine trophoblastin variant xd.  
 XX  
 XX Antiviral; antiinflammatory; antitumour; immunomodulator; immunogen;  
 KW trophoblastin; antiluteolytic agent.  
 XX  
 OS Ammotragus lervia.  
 XX  
 FH Key Location/Qualifiers  
 FT Peptide 1..23  
 FT /label= signal  
 XX  
 XX WO9209691-A1.  
 XX  
 PD 11-JUN-1992.  
 XX  
 XX 29-NOV-1991; 91WO-FR000953.  
 XX  
 XX 29-NOV-1990; 90FR-00014945.  
 PR 29-NOV-1990; 90FR-00014946.  
 XX  
 XX (INRG ) INRA INST NAT RECH AGRONOMIQUE.  
 PA  
 XX Martal J, Degryse E, Gaye P, Charlier M, Charpigny G, Reinaud P;  
 PI Chaouat G;  
 XX WPI; 1992-217070/26.  
 DR  
 XX New type I interferon variants with added N-terminal di:peptide - include  
 PT expression cassettes providing high yield in yeast, esp. trophoblast  
 PT derivs. with e.g. anti-luteolytic activity.  
 XX

```

PS Claim 7; Page 30; 53pp; French.
XX
CC The DNA sequence encoding the precursor of ovine trophoblastin was
CC disclosed in PCT WO 89/08706 (see AAR24941). AAR24942-R24945 are isoforms
CC of trophoblastin. They have anti-luteolytic activity and are used to
CC improve survival of transplanted embryos; as a reagent for detecting
CC viability of embryos at an early stage of its development; and to improve
CC the fertility of livestock. (Updated on 25-MAR-2003 to correct PN field.)
XX
SQ Sequence 195 AA;
Query Match 99.3%; Score 901; DB 2; Length 195;
Best Local Similarity 98.8%; Pred. No. 3.6e-91;
Matches 170; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYLSERLMLDARENKLLDRNMRLSPHSCLODRKDFGLPQEMVEGDQLQKDAQFPVLYEM 60
Db :|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
24 CYLSQRLMLDARENKLLDRNMRLSPHSCLODRKDFGLPQEMVEGDQLQKDAQFPVLYEM 83
QY 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVNGEEDSELGNMDDPIVTV 120
Db :|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
84 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVNGEEDSELGNMDDPIVTV 143
QY 121 KKYFGQIYDYLQEKGYSDCAWEIVRVMRALTIVSTTLQKRLTKMGGLNSP 172
Db :|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
144 KKYFGQIYDYLQEKGYSDCAWEIVRVMRALTIVSTTLQKRLTKMGGLNSP 195

RESULT 6
AAR54768
ID AAR54768 standard; protein; 172 AA.
XX
AC AAR54768;
XX
DT 25-MAR-2003 (revised)
DT 01-DEC-1994 (first entry)
XX
DE Sheep interferon-tau mature protein.
XX
KW Sheep; interferon-tau; immunostimulant; antitumor; virucide.
XX
OS Ovis aries.
XX
PN WO9410313-A2.
XX
PD 11-MAY-1994.
XX
PF 19-OCT-1993; 93WO-US010016.
XX
PR 30-OCT-1992; 92US-00969890.
XX
PA (UYFL ) UNIV FLORIDA.
PA (WOME-) WOMEN'S RES INST.
XX
PI Bazer FW, Johnson HM, Pontzer CH, Ott TL, Van Heeke G, Imakawa K;
XX
WPI; 1994-167468/20.
DR N-PSDB; AAQ64824.
XX
Interferon tau compns - lacking cytotoxic side effects when used as
PT antivirals, and anti-cellular proliferation agents.
XX
PS Claim 3; Page 90; 126pp; English.
XX
CC This sheep IFN-tau protein is expressed in yeast, insect cells or E. coli
CC using expression vector phage lambda-gt11. The protein is useful for
CC inhibit tumor cell growth, for inhibiting viral replication in cells
CC and enhancing fertility in female mammals. (Updated on 25-MAR-2003 to
CC correct PN field.)
XX
SQ Sequence 172 AA;
Query Match 99.1%; Score 899; DB 2; Length 172;
Best Local Similarity 98.8%; Pred. No. 5.1e-91;
Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 CYLSERLMLDARENKLLDRNMRLSPHSCLODRKDFGLPQEMVEGDQLQKDAQFPVLYEM 60
Db :|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
1 CYLSRKMLDARENKLLDRNMRLSPHSCLODRKDFGLPQEMVEGDQLQKDAQFPVLYEM 60
QY 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVNGEEDSELGNMDDPIVTV 120
Db :|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVNGEEDSELGNMDDPIVTV 120

Best Local Similarity 98.8%; Pred. No. 5.1e-91;
Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 CYLSERLMLDARENKLLDRNMRLSPHSCLODRKDFGLPQEMVEGDQLQKDAQFPVLYEM 60
Db :|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
1 CYLSRKMLDARENKLLDRNMRLSPHSCLODRKDFGLPQEMVEGDQLQKDAQFPVLYEM 60
QY 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVNGEEDSELGNMDDPIVTV 120
Db :|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVNGEEDSELGNMDDPIVTV 120

RESULT 7
AAR99397
ID AAR99397 standard; protein; 172 AA.
XX
AC AAR99397;
XX
DT 29-DEC-1996 (first entry)
XX
DE Ovine tau interferon (synthetic).
XX
KW Tau interferon; ovine; bovine; autoimmune disease;
KW proliferative disorder; viral disease; fertility.
XX
OS Synthetic.
XX
PN WO9628183-A1.
XX
PD 19-SEP-1996.
XX
PF 15-MAR-1996; 96WO-US003472.
XX
PR 16-MAR-1995; 95US-00406190.
XX
PA (UYFL ) UNIV FLORIDA.
XX
PI Soos JW, Schiftenbauer J, Johnson HM;
XX
WPI; 1996-464609/46.
DR N-PSDB; AAT41504.
XX
Tau interferon-contg. medicament - useful to treat autoimmune diseases,
PT proliferative disorders, viral diseases or to enhance fertility in a
PT female mammal.
XX
PS Claim 5; Page 48; 65pp; English.
XX
CC Ovine and human tau interferon may be used in medicaments to treat
CC autoimmune disorders (e.g. multiple sclerosis or rheumatoid arthritis), a
CC proliferative disorder (e.g. cancer) or a viral disease (e.g. hepatitis
CC B). It can also be used to enhance fertility in female mammals. The
CC medicament is given orally or by injection. Ovine and human tau
CC interferon sequences are given in AAT41504 to AAT41506
XX
SQ Sequence 172 AA;
Query Match 99.1%; Score 899; DB 2; Length 172;
Best Local Similarity 98.8%; Pred. No. 5.1e-91;
Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 CYLSERLMLDARENKLLDRNMRLSPHSCLODRKDFGLPQEMVEGDQLQKDAQFPVLYEM 60
Db :|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
1 CYLSRKMLDARENKLLDRNMRLSPHSCLODRKDFGLPQEMVEGDQLQKDAQFPVLYEM 60
QY 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVNGEEDSELGNMDDPIVTV 120
Db :|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVNGEEDSELGNMDDPIVTV 120

```

1 CYLSRKLMILDARENKLLDRMNLSPHSCLDQRKDFGLPQEWEGDQLQKDAQFPVLVEM 60

Db

61 LOSFNLFYTEHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGVNNGEEDSEIGNMDPIVTV 120

Qy

```

Db      61  LQOSENLFYTESSAAWDTTLLLEQLCTGLQOQLDHLDTCRGVGMGEEDSELGNMDDPIVTV 120
      |||
QY      121  KKYFGQIDYDLOEKGYSDCAWEIVRVEMMRALTSTTTLQKRLTKMGGLNSP 172
      |||
Db      121  KKYFGQIDYDLOEKGYSDCAWEIVRVEMMRALTSTTTLQKRLTKMGGLNSP 172
      |||

RESULT 10
ID      ABB07588
XX      ABB07588 standard; protein; 172 AA.
AC      ABB07588;
XX
XX
DT      08-MAY-2002 (first entry)
XX
XX      Ovine interferon-tau protein.
XX
XX      Hepatitis C virus; HCV infection; ovine; interferon-tau; ovIFN-tau; OAS;
KW      2',5'-oligoadenylate synthetase; virucide; hepatotropic; IFN-tau.
XX
XX      Ovis aries.
OS
XX      WO200206343-A2.
XX
XX      24-JAN-2002.
XX
XX      19-JUL-2001; 2001WO-US022976.
XX
XX      19-JUL-2000; 2000US-0219128P.
XX      17-OCT-2000; 2000JP-00317160.
XX
XX      (PEPG-) PEPGEN CORP.
XX
XX      Sokawa Y, Liu C;
XX
XX      WPI; 2002-179784/23.
XX      N-PSDB; ABA94936.
XX
XX      Oral-delivery composition for treating conditions relating to hepatitis
PT      caused by hepatitis C virus, comprises ovine interferon-tau which
PT      stimulates bloodstream levels of 2',5'-oligoadenylate synthetase.
XX
XX      Example 1; Page 32-33; 33pp; English.
XX
XX      The invention provides an oral-delivery composition for use in treating
CC      hepatitis C virus (HCV) in a HCV-infected patient. The composition
CC      comprises ovine interferon-tau (ovIFN-tau), in a dosage effective to
CC      stimulate bloodstream levels of 2',5'-oligoadenylate synthetase (OAS).
CC      The ovIFN-tau synthesizes OAS which degrades viral mRNA. A method is also
CC      provided for monitoring the treatment of HCV by oral administration of
CC      ovIFN-tau, by measuring the blood levels of OAS prior to and after such
CC      oral administration, and if necessary, adjusting the dose of IFN-tau
CC      until a measurable increase in blood OAS level, relative to the level
CC      observed prior to administration. The composition is useful for treating
CC      hepatitis caused by HCV and the method is useful for monitoring treatment
CC      of HCV by oral administration of ovIFN-tau. The present sequence
XX      represents an ovine interferon-tau protein
XX
XX      Sequence 172 AA;
XX
XX      Query Match      99.1%; Score 899; DB 5; Length 172;
XX      Best Local Similarity 98.8%; Pred. No. 5.1e-91;
XX      Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY      1  CYLSERLMLDARENKLLDRNRLSPHSCLOQRKDFGLPQEWVEGDQLQDQAPPLYEM 60
      |||
Db      1  CYLSERLMLDARENKLLDRNRLSPHSCLOQRKDFGLPQEWVEGDQLQDQAPPLYEM 60
      |||

QY      61  LQOSENLFYTESSAAWDTTLLLEQLCTGLQOQLDHLDTCRGVGMGEEDSELGNMDDPIVTV 120
      |||
Db      61  LQOSENLFYTESSAAWDTTLLLEQLCTGLQOQLDHLDTCRGVGMGEEDSELGNMDDPIVTV 120
      |||

```

```

QY      121  KKYFGQIDYDLOEKGYSDCAWEIVRVEMMRALTSTTTLQKRLTKMGGLNSP 172
      |||
Db      121  KKYFGQIDYDLOEKGYSDCAWEIVRVEMMRALTSTTTLQKRLTKMGGLNSP 172
      |||

RESULT 11
ID      ADI17857
XX      ADI17857 standard; protein; 172 AA.
XX
XX      ADI17857;
XX
XX      22-APR-2004 (first entry)
XX
XX      Mature ovine interferon-tau, SEQ ID NO:2.
XX
XX      Interferon-tau; oral dosage form; oral administration; fasted state;
KW      2',5'-oligoadenylate synthetase; OAS; autoimmune condition;
KW      multiple sclerosis; diabetes mellitus; Hashimoto's thyroiditis;
KW      rheumatoid arthritis; uveitis; psoriasis; systemic lupus erythematosus;
KW      allergy; asthma; eczema; crohn's disease; ulcerative colitis;
KW      viral infection; HIV infection; hepatitis;
KW      cellular proliferation disorder; multiple myeloma; ovarian cancer;
KW      hairy cell leukaemia; inflammatory disease; immunosuppressive; virucide;
KW      cytostatic; antiinflammatory; neuroprotective; antidiabetic;
KW      thymomimetic; antirheumatic; antiarthritic; ophthalmological;
KW      antipsoriatic; dermatological; antiallergic; antiasthmatic; antiulcer;
KW      anti-HIV; hepatotropic; vaccine; ovine; sheep.
XX
XX      Ovis aries.
OS
XX      Synthetic.
XX
XX      WO2003061728-A2.
XX
XX      31-JUL-2003.
XX
XX      16-JAN-2003; 2003WO-US001596.
XX
XX      16-JAN-2002; 2002US-0349658P.
XX
XX      (PEPG-) PEPGEN CORP.
XX
XX      Sokawa Y, Liu C;
XX
XX      WPI; 2003-598711/56.
XX      N-PSDB; ADI17856.
XX
XX      An oral dosage form of interferon-tau administered to a subject in a
PT      fasted state to achieve an increased level of 2',5'-oligoadenylate
PT      synthetase, useful for treating a condition responsive to interferon-tau,
PT      e.g. viral infection.
XX
XX      Claim 3; SEQ ID NO 2; 28pp; English.
XX
XX      The invention relates to a composition for use in treating a condition
CC      responsive to interferon-tau, comprising an oral dosage form of interferon
CC      -tau. The composition is administered to a patient in a fasted state to
CC      increase the level of 2',5'-oligoadenylate synthetase (OAS) in the blood
CC      relative to that obtained after administration of interferon-tau to a fed
CC      patient. The interferon-tau used in the composition is preferably ovine
CC      or bovine. The composition is useful in the treatment of autoimmune
CC      conditions (e.g., multiple sclerosis, diabetes mellitus, Hashimoto's
CC      thyroiditis, rheumatoid arthritis, uveitis, psoriasis, systemic lupus
CC      erythematosus, allergies, asthma, eczema, Crohn's disease or ulcerative
CC      colitis), viral infections (e.g., HIV infection or hepatitis), disorders
CC      associated with cellular proliferation (e.g., multiple myeloma, ovarian
CC      cancer or hairy cell leukaemia), or inflammatory diseases. The present
CC      sequence represents mature ovine interferon-tau.
XX
XX      Sequence 172 AA;
XX
XX      Query Match      99.1%; Score 899; DB 7; Length 172;
XX      Best Local Similarity 98.8%; Pred. No. 5.1e-91;
XX      Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

```

Qy	1	CYLSERLMLDARENIKLLDRMNRISPHSCLODRKDFGLPQEMVEGDQLQKQQAFFVLVYEM	60
		:	
Db	1	CYLRSRKLMLDARENIKLLDRMNRISPHSCLODRKDFGLPQEMVEGDQLQKQQAFFVLVYEM	60
Qy	61	LOQSFNLFYTESHAADWTTLLEQLCTGLQQLQDLHDTCRGVNGEEDSELGNMDDIVTV	120
Db	61	LOQSFNLFYTESHAADWTTLLEQLCTGLQQLQDLHDTCRGVNGEEDSELGNMDDIVTV	120
Qy	121	KYFQGIYDYLQEKGYSCAMEIVRVENMRALTVSTTLQKRLTKMGDGLNSP	172
Db	121	KYFQGIYDYLQEKGYSCAMEIVRVENMRALTVSTTLQKRLTKMGDGLNSP	172

RESULT 12	
ADM79177	
ID	ADM79177 standard; protein; 172 AA.
XX	
AC	ADM79177;
XX	
XX	15-JUL-2004 (first entry)
DT	
XX	
DE	Mature ovine interferon tau protein SEQ ID NO:1.
XX	
XX	oral administration; interferon; IFN; ovine; mature interferon tau.
KW	
XX	
OS	Ovis aries..
XX	
PN	WO2004032863-A2.
XX	
PD	22-APR-2004.
XX	
XX	08-OCT-2003; 2003WO-US031999.
PF	
XX	
PR	09-OCT-2002; 2002US-0417292P.
XX	
PA	(PEPG-) PEPGEN CORP.
XX	
XX	Manning MC, Nayar R;
PI	
XX	
DR	WPI; 2004-340799/31.
XX	
XX	
PT	A composition for oral administration of an interferon (IFN) comprises an
PT	IFN and a species that stabilizes the IFN in an active form by
PT	interaction between the interferon and the species.
XX	
PS	Example; SEQ ID NO 1; 52pp; English.

The present invention describes a composition for the oral administration of an interferon (IFN) comprising an IFN and a species that stabilises the IFN in an active form by interaction between the IFN and the species. Also described: (1) preparing a protein for oral administration, comprising formulating the protein with a species that stabilises the protein in an active form by binding interaction between the protein and the species, therefore the formulating results in a composition for oral administration; and (2) selecting a dosage form composition for a protein that achieves protein stabilisation for biological activity upon *in vivo* administration, comprising selecting a protein for formulation, preparing solutions of the selected protein or polypeptide in different buffers at different pH values, and measuring the effect of the buffer on the protein's tertiary structure, where the measuring identifies buffers that result retention of the protein's tertiary structure. The composition and methods are useful for preparing oral dosage forms for administration of proteins and polypeptides. The present sequence represents the mature ovine interferon tau amino acid sequence, which is used in an example from the present invention.

Sequence 172 AA;

Query Match 99.1%; Score 899; DB 8; Length 172;

Query Match 99.1%; Score 0.55; DB 0; Length 172;  
 Best Local Similarity 98.8%; Pred. No. 5.1e-91;  
 Matches 170; Conservative 1; Mismatches 0; Gaps 0;

Qy	1	CYL	SER	LWL	DARE	NIL	KLD	RNR	LS	SP	SC	LD	RK	DF	GL	PQ	WV	EG	DL	QK	OA	FP	VLY	EM	60				
Db	1	CYL	SR	KWL	DARE	NIL	KLD	RNR	LS	SP	SC	LD	RK	DF	GL	PQ	WV	EG	DL	QK	OA	FP	VLY	EM	60				
Qy	61	LQ	SF	NL	FY	TEH	SSA	AW	DT	LL	EQ	LT	GL	QO	OL	DH	LD	TC	RG	OV	ME	ED	SEL	GN	MD	PI	VT	V	120
Db	61	LQ	SF	NL	FY	TEH	SSA	AW	DT	LL	EQ	LT	GL	QO	OL	DH	LD	TC	RG	OV	ME	ED	SEL	GN	MD	PI	VT	V	120
Qy	121	KY	FO	GI	YD	YL	OE	KG	YD	SC	AW	EI	VR	VE	NM	RA	LT	VS	TT	LQ	KL	TK	MG	DL	NS	P	172		
Db	121	KY	FO	GI	YD	YL	OE	KG	YD	SC	AW	EI	VR	VE	NM	RA	LT	VS	TT	LQ	KL	TK	MG	DL	NS	P	172		

RESULT 13	
ADSD13613	
ID	ADSD13613 standard; protein; 172 AA.
XX	
XX	ADSD13613;
XX	
XX	16-DEC-2004 (first entry)
XX	
XX	Sheep interferon tau seqid 2.
DE	
XX	
KW	immunosuppressive; cytostatic; virucide; neuroprotective; antidiabetic;
KW	muscular; antiinflammatory; antirheumatic; antiarthritic; antiasthmatic;
KW	dermatological; vaccine; interferon tau; 2',5'-oligoadenylate synthetase;
KW	OAS; autoimmune condition; cancer; viral infection; multiple sclerosis;
KW	hepatitis C infection; diabetes mellitus; systemic lupus erythematosus;
KW	amyotrophic lateral sclerosis; Crohn's disease; rheumatoid arthritis;
KW	asthma; uveitis; psoriasis; hypersensitivity disorder; sheep.

OS	Ovis aries.
XX	US2004191217-A1.
XX	
XX	30-SEP-2004.
PD	
XX	
XX	21-NOV-2003; 2003US-00719472.
PF	
XX	
XX	19-JUL-2000; 2000US-0219128P.
PR	
PR	19-JUL-2001; 2001US-03910406.
PR	16-JAN-2002; 2002US-0349658P.
PR	16-JAN-2003; 2003US-00346269.
PR	31-OCT-2003; 2003US-00698927.
XX	
XX	(SOKA/) SOKAWA Y.
PA	(LIUC/) LIU C.
PA	

XX Sokawa Y, Liu C;  
PI  
XX  
XX WPI; 2004-698654/68.  
DR  
DR N-PSDB; ADSJ3612.  
XX  
XX Treating a condition in a subject, e.g. autoimmune condition, cancer or  
PT viral infection, comprises orally administering interferon-tau to the  
PT intestinal tract to increase the blood 2',5'-oligoadenylate synthetase  
PT level.  
XX  
XX Claim 2; SEQ ID NO 2; 38pp; English.  
PS  
XX The invention describes a method of treating a condition in a human  
CC subject responsive to interferon tau therapy comprises orally  
CC administering interferon-tau to the intestinal tract of the subject to  
CC produce an initial measurable increase in the subject's blood 2',5'-  
CC oligoadenylate synthetase (OAS) level, relative to the blood OAS level in  
CC the subject in the absence of interferon-tau administration. The method  
CC is useful for treating an autoimmune condition, cancer, or a viral  
CC infection. The method is particularly useful for treating multiple  
CC sclerosis or hepatitis C infection, diabetes mellitus, systemic lupus  
CC erythematosus, amyotrophic lateral sclerosis, Crohn's disease, rheumatoid  
CC arthritis, asthma, uveitis, psoriasis, and hypersensitivity disorders.  
CC This is the amino acid sequence of ovine interferon-tau.  
XX

SQ Sequence 172 AA;  
Query Match 99.1%; Score 899; DB 8; Length 172;  
Best Local Similarity 98.8%; Pred. No. 5.1e-91;  
Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;  
QY 1 CYLSERLMLDARENKLLDRMNRSLPHSCLQDRKDFGLPQEMVEGDQLOKQDAFPVLYEM 60  
DB 1 CYLSRKLMLDARENKLLDRMNRSLPHSCLQDRKDFGLPQEMVEGDQLOKQDAFPVLYEM 60  
QY 61 LQOSFNLFFTEHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
DB 61 LQOSFNLFFTEHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDLNSP 172  
DB 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDLNSP 172  
RESULT 14  
AAR04540  
ID AAR04540 standard; protein; 195 AA.  
XX  
AC AAR04540;  
XX  
DT 25-MAR-2003 (revised)  
DT 17-SEP-1990 (first entry)  
XX  
DE Ovine trophoblast protein-1 (otP-1).  
XX  
KW Bovine trophoblast protein-1; bTP-1; fertility; ds.  
XX  
OS Sus scrofa.  
XX  
PN EP367063-A.  
XX  
PD 09-MAY-1990.  
XX  
PF 23-OCT-1989; 89EP-00119642.  
XX  
PR 26-OCT-1988; 88US-00262870.  
XX  
PA (UMOR ) UNIV MISSOURI.  
XX  
PI Roberts MR, Imakawa K;  
XX  
DR WPI; 1990-141062/19.  
DR N-PSDB; AAQ04289.  
XX  
PT Recombinant bovine trophoblast protein-1 - used for enhancing fertility  
PT or treating viral diseases in mammal, esp. cattle.  
XX  
PS Disclosure; Page ?; 27pp; English.  
XX  
CC The bTP-1 produced from the gene may be used to promote fertility or  
CC treat viral disease in cattle. The gene may also be used to provide  
CC transgenic animals with enhanced fertility, or in prophylactic and  
CC therapeutic treatment of other mammals. (Updated on 25-MAR-2003 to  
CC correct PA field.)  
XX  
SQ Sequence 195 AA;  
Query Match 99.1%; Score 899; DB 2; Length 195;  
Best Local Similarity 98.8%; Pred. No. 6.1e-91;  
Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;  
QY 1 CYLSERLMLDARENKLLDRMNRSLPHSCLQDRKDFGLPQEMVEGDQLOKQDAFPVLYEM 60  
DB 24 CYLSRKLMLDARENKLLDRMNRSLPHSCLQDRKDFGLPQEMVEGDQLOKQDAFPVLYEM 83  
QY 61 LQOSFNLFFTEHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
DB 84 LQOSFNLFFTEHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 143  
QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDLNSP 172  
DB 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDLNSP 195

QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDLNSP 172  
DB 144 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDLNSP 195  
RESULT 15  
AAR24944  
ID AAR24944 standard; protein; 195 AA.  
XX  
AC AAR24944;  
XX  
DT 25-MAR-2003 (revised)  
DT 03-JAN-1992 (first entry)  
XX  
DE Sequence of ovine trophoblastin variant Xc.  
XX  
KW Antiviral; antiinflammatory; antitumour; immunomodulator; immunogen;  
KW trophoblastin; antiluteolytic agent.  
XX  
OS Ammotragus lervia.  
XX  
FH Key Location/Qualifiers  
FT Peptide 1..23  
FT /label= signal  
XX  
PN WO20209691-A1.  
XX  
PD 11-JUN-1992.  
XX  
PF 29-NOV-1991; 91WO-FR000953.  
XX  
PR 29-NOV-1990; 90FR-00014945.  
PR 29-NOV-1990; 90FR-00014946.  
XX  
PA (INRG ) INRA INST NAT RECH AGRONOMIQUE.  
XX  
PI Martal J, Degryse E, Gaye P, Charlier M, Charpigny G, Reinaud P;  
PI Chacuat G;  
XX  
DR WPI; 1992-217070/26.  
XX  
PT New type I interferon variants with added N-terminal dipeptide - include  
PT expression cassettes providing high yield in yeast, esp. trophoblast  
PT derivs. with e.g. anti-luteolytic activity.  
XX  
PS Claim 7; Page 30; 53pp; French.  
XX  
CC The DNA sequence encoding the precursor of ovine trophoblastin was  
CC disclosed in PCT WO 89/08706 (see AAR24941). AAR24942-R24945 are isoforms  
CC of trophoblastin. They have anti-luteolytic activity and are used to  
CC improve survival of transplanted embryos; as a reagent for detecting  
CC viability of embryos at an early stage of its development; and to improve  
CC the fertility of livestock. (Updated on 25-MAR-2003 to correct PN field.)  
XX  
SQ Sequence 195 AA;  
Query Match 99.0%; Score 898; DB 2; Length 195;  
Best Local Similarity 98.3%; Pred. No. 7.8e-91;  
Matches 169; Conservative 3; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CYLSERLMLDARENKLLDRMNRSLPHSCLQDRKDFGLPQEMVEGDQLOKQDAFPVLYEM 60  
DB 24 CYLSRKLMLDARENKLLDRMNRSLPHSCLQDRKDFGLPQEMVEGDQLOKQDAFPVLYEM 83  
QY 61 LQOSFNLFFTEHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
DB 84 LQOSFNLFFTEHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 143  
QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDLNSP 172  
DB 144 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDLNSP 195



Search completed: October 28, 2005, 14:56:02  
Job time : 122 secs

---

THIS PAGE BLANK (USPTO)

GenCore version 5.1.6  
Copyright (c) 1993 - 2005 Compugen Ltd.

OM protein - protein search, using sw model

Run on: October 28, 2005, 14:51:03 ; Search time 25 Seconds  
(without alignments)  
661.971 Million cell updates/sec

Title: US-10-719-472-3

Perfect score: 907

Sequence: 1 CYLSRLMLDARENKLLDR.....TVSTTLQKRLTKWGGDLNSP 172

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues

Total number of hits satisfying chosen parameters: 283416

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : PIR 79:\*

1: pir1:\*

2: pir2:\*

3: pir3:\*

4: pir4:\*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	901	99.3	195	2 JS0204	trophoblast interf
2	878	96.8	195	2 I47068	trophoblast protei
3	872	96.1	195	2 I47066	trophoblast protei
4	869	95.8	195	2 I47069	trophoblast protei
5	844	93.1	195	2 I46272	trophoblast interf
6	839	92.5	172	2 A61578	trophoblast protei
7	834	92.0	195	2 A61455	trophoblast protei
8	810	89.3	195	2 I47067	trophoblast protei
9	782	86.2	195	2 I47097	trophoblast protei
10	749	82.6	184	2 I47098	trophoblast protei
11	729	80.4	195	2 A39505	trophoblast interf
12	727	80.2	195	2 S23751	trophoblast interf
13	724	79.8	195	2 A40068	trophoblast protei
14	724	79.8	195	2 B39505	trophoblast protei
15	610	67.3	195	2 A53746	interferon, tropho
16	609	67.1	195	2 A61403	interferon alpha-I
17	588	64.8	195	2 I47070	interferon omega
18	586	64.6	195	2 I46397	interferon alpha
19	583	64.3	195	1 IVB011	interferon alpha-I
20	514.5	56.7	190	2 S23711	interferon alpha-I
21	500	55.1	195	1 IVH022	interferon alpha-I
22	489.5	54.0	190	2 S23712	interferon alpha-I
23	489	53.9	110	2 B61578	trophoblast protei
24	474	52.3	195	1 IVH011	interferon omega-I
25	470.5	51.9	179	2 S23710	interferon alpha-I
26	455	50.2	189	2 I51970	interferon precurs
27	447	49.3	176	2 I56314	interferon-alpha
28	443	48.8	195	1 IVH021	interferon alpha-I
29	441	48.6	189	1 IVH021	interferon alpha-I

ALIGNMENTS

RESULT 1

JS0204

trophoblast interferon alpha precursor - sheep

N:Alternate names: antiluteolysin; trophoblast antiluteolytic protein; trophoblastic prot

C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)

C>Date: 31-Mar-1990 #sequence revision 31-Mar-1990 #text change 09-Jul-2004

C:Accession: S03799; B61403; JS0204; A60947; A53867; S06321; S00306; A60857; A60936

R:Stewart, H.J.; Flint, A.P.F.; Lamming, G.E.; McCann, S.H.E.; Parkinson, T.J.

Submitted to the EMBL Data Library, June 1988

A:Reference number: S03799

A:Accession: S03799

A:Molecule type: DNA

A:Residues: 1-195 <ST3>

A:Cross-references: UNIPROT:P56828; UNIPROT:P56829; EMBL:X07920; NID:gl821; PIDN:CAA3075

R:Charlier, M.; Hue, D.; Boissard, M.; Martal, J.; Gaye, P.

Mol. Cell. Endocrinol. 76, 161-171, 1991

A:Title: Cloning and structural analysis of two distinct families of ovine interferon- $\alpha$

A:Reference number: A61403; MUID:92324492; PMID:1820971

A:Accession: B61403

A>Status: not compared with conceptual translation

A:Molecule type: DNA

A:Residues: 1-129, 'K', 131-195 <CHA>

R:Charlier, M.; Hue, D.; Martal, J.; Gaye, P.

Gene 77, 341-348, 1989

A:Title: Cloning and expression of cDNA encoding ovine trophoblastin: its identity with  $\epsilon$

A:Reference number: JS0204; MUID:89326151; PMID:2753362

A:Accession: JS0204

A:Molecule type: mRNA

A:Residues: 1-195 <CHM>

A:Cross-references: GB:M26386; NID:g530199; PIDN:AAA31584.1; PID:g530200

A:Experimental source: embryo

R:Stewart, H.J.; McCann, S.H.E.; Northrop, A.J.; Lamming, G.E.; Flint, A.P.F.

J. Mol. Endocrinol. 2, 65-70, 1989

A:Title: Sheep antiluteolytic interferon: cDNA sequence and analysis of mRNA levels.

A:Reference number: A60947; MUID:89351557; PMID:2475129

A:Accession: A60947

A:Molecule type: mRNA

A:Residues: 1-195 <ST3>

R:Stewart, H.J.; Flint, A.P.F.; Lamming, G.E.; McCann, S.H.E.; Parkinson, T.J.

J. Reprod. Fertil. Suppl. 37, 127-138, 1989

A:Title: Antiluteolytic effects of blastocyst-secreted interferon investigated in vitro  $\epsilon$

A:Reference number: A53867; MUID:90040431; PMID:2530342

A:Accession: A53867

A:Molecule type: mRNA

A:Residues: 1-195 <ST4>

R:Imakawa, K.; Anthony, R.V.; Kazemi, M.; Marrotti, K.R.; Polites, H.G.; Roberts, R.M.

Nature 330, 377-379, 1987

A:Title: Interferon-like sequence of ovine trophoblast protein secreted by embryonic trof

A:Reference number: S06221; MUID:88065855; PMID:2446135

A:Accession: S06221

A:Molecule type: mRNA

A:Residues: 1-27, 'RK', 30-105, 'E', 107-195 <IMA>

Query Match	96.8%	Score 878;	DB 2;	Length 195;
Best Local Similarity	96.5%;	Pred. NO. 6.5e-73;		
Matches 166; Conservative	3;	Mismatches 3;	Indels	0;
Gaps	0;			

Query Match 95.8%; Score 869; DB 2; Length 195;  
Best Local Similarity 95.3%; Pred. No. 4.3e-72;  
Matches 164; Conservative 5; Mismatches 3; Indels 0; Gaps 0;  
ov 1 CYLSERIMLDARENLLKLLDRMNRLLSPHSCLODRKDFGLPOENVEGDIOLKDOAFPLYEM 60



C;Superfamily: interferon alpha

Query Match 89.3%; Score 810; DB 2; Length 195;  
Best Local Similarity 90.1%; Pred. No. 1.1e-66;  
Matches 155; Conservative 8; Mismatches 9; Indels 0; Gaps 0;  
QY 1 CYLSRLMLDARENKLLDRMNRSLPHSCLQDRKDFGLPQEMVEGDQLQKQAFVLYEM 60  
DB 24 CYLSRLMLDARENKLLDRMNRSLPHSCLQDRKDFGLPQEMVEGDQLQKQAFVLYEM 83  
QY 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQQQLDHLDTCRGQVMEEDSELGNMDPIVTV 120  
DB 84 LQOSFNLFHTERSAAWNTTLLLEQLCTGLQQQLDHLDTCRGQVMEEDSELGNMDPIVTV 143  
QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTTSVTTLOKRLTKMGDLNSP 172  
DB 144 KKYFGIHYLYQEKGYSDCAWEIVRVMRALTTSVTTLOKRLTKMGDLNSP 195

## RESULT 9

I47097  
trophoblast protein-1 - sheep  
C;Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)  
C;Date: 15-Oct-1996 #sequence\_revision 15-Oct-1996 #text\_change 09-Jul-2004  
C;Accession: I47097  
R;Leaman, D.W.; Roberts, R.M.  
J. Interferon Res. 12, 1-11, 1992  
A;Title: Genes for the trophoblast interferons in sheep, goat, and musk ox and distributed  
A;Reference number: I46272; MUID:92242937; PMID:1374107  
A;Accession: I47097  
A;Status: preliminary; translated from GB/EMBL/DBJ  
A;Molecule type: DNA  
A;Residues: 1-195 <EA>  
A;Cross-references: UNIPROT:P28169; GB:M73241; NID:g166025; PIDN:AAA31573.1; PID:g166026  
C;Genetics:  
A;Gene: OTP-1  
C;Superfamily: interferon alpha

Query Match 86.2%; Score 782; DB 2; Length 195;  
Best Local Similarity 87.2%; Pred. No. 3.8e-64;  
Matches 150; Conservative 12; Mismatches 10; Indels 0; Gaps 0;  
QY 1 CYLSRLMLDARENKLLDRMNRSLPHSCLQDRKDFGLPQEMVEGDQLQKQAFVLYEM 60  
DB 24 CYLSRLMLDARENKLLDRMNRSLPHSCLQDRKDFGLPQEMVEGDQLQKQAFVLYEM 83  
QY 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQQQLDHLDTCRGQVMEEDSELGNMDPIVTV 120  
DB 84 LQOSFNLFHTERSAAWNTTLLLEQLCTGLQQQLDHLDTCRGQVMEEDSELGNMDPIVTV 143  
QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTTSVTTLOKRLTKMGDLNSP 172  
DB 144 KKYFGIHYLYQEKGYSDCAWEIVRVMRALTTSVTTLOKRLTKMGDLNSP 195

## RESULT 10

I47098  
trophoblast protein-1 - sheep  
C;Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)  
C;Date: 15-Oct-1996 #sequence\_revision 15-Oct-1996 #text\_change 16-Jul-1999  
C;Accession: I47098  
R;Leaman, D.W.; Roberts, R.M.  
J. Interferon Res. 12, 1-11, 1992  
A;Title: Genes for the trophoblast interferons in sheep, goat, and musk ox and distributed  
A;Reference number: I46272; MUID:92242937; PMID:1374107  
A;Accession: I47098  
A;Status: preliminary; translated from GB/EMBL/DBJ  
A;Molecule type: DNA  
A;Residues: 1-184 <EA>  
A;Cross-references: GB:M73242; NID:g166027; PIDN:AAA31574.1; PID:g166028  
C;Genetics:  
A;Gene: OTP-1  
C;Superfamily: interferon alpha

Query Match 82.6%; Score 749; DB 2; Length 184;  
Best Local Similarity 89.4%; Pred. No. 3.6e-61;  
Matches 143; Conservative 9; Mismatches 8; Indels 0; Gaps 0;  
QY 1 CYLSRLMLDARENKLLDRMNRSLPHSCLQDRKDFGLPQEMVEGDQLQKQAFVLYEM 60  
DB 24 CYLSRLMLDARENKLLDRMNRSLPHSCLQDRKDFGLPQEMVEGDQLQKQAFVLYEM 83  
QY 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQQQLDHLDTCRGQVMEEDSELGNMDPIVTV 120  
DB 84 LQOSFNLFHTERSAAWNTTLLLEQLCTGLQQQLDHLDTCRGQVMEEDSELGNMDPIVTV 143  
QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTTSVTTLOK 160  
DB 144 KKYFGIHYLYQEKGYSDCAWEIVRVMRALTTSVTTLOK 183

## RESULT 11

A39505  
trophoblast interferon 4 precursor (clone bTP4) - bovine  
C;Species: Bos primigenius taurus (cattle)  
C;Date: 30-Dec-1991 #sequence\_revision 30-Dec-1991 #text\_change 09-Jul-2004  
C;Accession: A39505  
R;Hansen, T.R.; Leaman, D.W.; Cross, J.C.; Mathialagan, N.; Bixby, J.A.; Roberts, R.M.  
J. Biol. Chem. 266, 3060-3067, 1991  
A;Title: The genes for the trophoblast interferons and the related interferon-alphaII por  
A;Reference number: A39505; MUID:91131606; PMID:1704373  
A;Accession: A39505  
A;Status: preliminary  
A;Molecule type: mRNA  
A;Residues: 1-195 <HAN>  
A;Cross-references: UNIPROT:P15696; GB:M60908; NID:g163213; PIDN:AAA62711.1; PID:g163214;  
C;Superfamily: interferon alpha  
F;1-23/Domain: signal sequence #status predicted <SIG>  
F;24-195/Product: interferon alpha-II #status predicted <MAT>

Query Match 80.4%; Score 729; DB 2; Length 195;  
Best Local Similarity 81.3%; Pred. No. 2.6e-59;  
Matches 139; Conservative 14; Mismatches 18; Indels 0; Gaps 0;  
QY 1 CYLSRLMLDARENKLLDRMNRSLPHSCLQDRKDFGLPQEMVEGDQLQKQAFVLYEM 60  
DB 24 CYLSRLMLDARENKLLDRMNRSLPHSCLQDRKDFGLPQEMVEGDQLQKQAFVLYEM 83  
QY 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQQQLDHLDTCRGQVMEEDSELGNMDPIVTV 120  
DB 84 LQOSFNLFYTEHSSAAWNTTLLLEQLCTGLQQQLDHLDTCRGQVMEEDSELGNMDPIVTV 143  
QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTTSVTTLOKRLTKMGDLNS 171  
DB 144 KKYFGIHYLYQEKGYSDCAWEIVRVMRALTTSVTTLOKRLTKMGDLNS 194

## RESULT 12

S23751  
trophoblast interferon type I precursor - bovine  
C;Species: Bos primigenius taurus (cattle)  
C;Date: 19-Feb-1994 #sequence\_revision 10-Nov-1995 #text\_change 09-Jul-2004  
C;Accession: S23751  
R;Stewart, H.J.; McCann, S.H.E.; Flint, A.P.F.  
J. Mol. Endocrinol. 4, 275-282, 1990  
A;Title: Structure of an interferon-alpha2 gene expressed in the bovine conceptus early i  
A;Reference number: S23751; MUID:90334707; PMID:2378676  
A;Accession: S23751  
A;Status: preliminary  
A;Molecule type: DNA  
A;Residues: 1-195 <STE>  
A;Cross-references: UNIPROT:P15696; EMBL:X65539; NID:g765; PIDN:CAA46506.1; PID:g766  
C;Superfamily: interferon alpha

Query Match 80.2%; Score 727; DB 2; Length 195;  
Best Local Similarity 81.3%; Pred. No. 4e-59;

Matches 139; Conservative 14; Mismatches 18; Indels 0; Gaps 0;	
QY 1 CYLSRLMLDARENKLLDRMNRSLSPHSCLQDRKDFGLPQEMVEGQLOKQDAFPVLYEM 60	
Db 24 CYLSEDHMLGARENRLRLARMNRSLSPHPCLODRKDFGLPQEMVEGQLOKQDAISVLHEM 83	
QY 61 LQOSFNLFTYHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMBEEDSELGNMDDPIVTV 120	
Db 84 LQOCLNLFYTEHSSAAWNTLLLEQLCTGLQOQLDHLDTCRGQVMBEEDSELGNMDDPIVTV 143	
QY 121 KKYFGIYDYLOEKGYSDCAWEIVRVMRALTIVSTTLQKRLTKMGDDLNS 171	
Db 144 KKYFGIHYVLKEKGYSDCAWEIIRVMRALTSSSTTLQKRLTKMGDDLNS 194	
RESULT 13	
A40068	
trophoblast protein-1 precursor (clone bTP509) - bovine	
C:Species: Bos primigenius taurus (cattle)	
C>Date: 28-Feb-1992 #sequence_revision 28-Feb-1992 #text_change 09-Jul-2004	
C:Accession: A40068	
R:Imakawa, K.; Hansen, T.R.; Malathy, P.V.; Anthony, R.V.; Polites, H.G.; Marotti, K.R.; Mol. Endocrinol. 3, 127-139, 1989	
A:Title: Molecular cloning and characterization of complementary deoxyribonucleic acids non-alpha-II.	
A:Reference number: A40068; MUID:89127268; PMID:2521687	
A:Accession: A40068	
A:Status: preliminary	
A:Molecule type: mRNA	
A:Residues: 1-195 <MA>	
A:Cross-references: UNIPROT:Q9MYK6; UNIPROT:Q9GLL6; GB:M31556	
C:Superfamily: interferon alpha	
F:1-23/Domain: signal sequence #status predicted <SIG>	
F:24-195/Product: trophoblast protein-1 #status predicted <MAT>	
Query Match 79.8%; Score 724; DB 2; Length 195;	
Best Local Similarity 81.3%; Pred. No. 7.5e-59;	
Matches 139; Conservative 13; Mismatches 19; Indels 0; Gaps 0;	
QY 1 CYLSRLMLDARENKLLDRMNRSLSPHSCLQDRKDFGLPQEMVEGQLOKQDAFPVLYEM 60	
Db 24 CYLSEDHMLGARENRLRLARMNRSLSPHPCLODRKDFGLPQEMVEGQLOKQDAISVLHEM 83	
QY 61 LQOSFNLFTYHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMBEEDSELGNMDDPIVTV 120	
Db 84 LQOCLNLFYTEHSSAAWNTLLLEQLCTGLQOQLDHLDTCRGQVMBEEDSELGNMDDPIVTV 143	
QY 121 KKYFGIYDYLOEKGYSDCAWEIVRVMRALTIVSTTLQKRLTKMGDDLNS 171	
Db 144 KKYFGIHYVLKEKGYSDCAWEIIRVMRALTSSSTTLQKRLTKMGDDLNS 194	
RESULT 14	
B39505	
trophoblast protein-1 precursor (clone 330) - bovine	
C:Species: Bos primigenius taurus (cattle)	
C>Date: 30-Dec-1991 #sequence_revision 30-Dec-1991 #text_change 09-Jul-2004	
C:Accession: B39505	
R:Hansen, T.R.; Leaman, D.W.; Cross, J.C.; Mathialagan, N.; Bixby, J.A.; Roberts, R.M. J. Biol. Chem. 266, 3060-3067, 1991	
A:Title: The genes for the trophoblast interferons and the related interferon-alphaII pC	
A:Reference number: A39505; MUID:91131606; PMID:1704373	
A:Accession: B39505	
A:Status: preliminary	
A:Molecule type: DNA	
A:Residues: 1-195 <HAN>	
A:Cross-references: UNIPROT:P15696; GB:M60903; GB:M38189; NID:G2340962; PIDN:AAB67325.1;	
C:Superfamily: interferon alpha	
F:1-23/Domain: signal sequence #status predicted <SIG>	
F:24-195/Product: trophoblast protein-1 #status predicted <MAT>	
Query Match 79.8%; Score 724; DB 2; Length 195;	
Best Local Similarity 81.3%; Pred. No. 7.5e-59;	

Matches 139; Conservative 13; Mismatches 19; Indels 0; Gaps 0;	
QY 1 CYLSRLMLDARENKLLDRMNRSLSPHSCLQDRKDFGLPQEMVEGQLOKQDAFPVLYEM 60	
Db 24 CYLSEDHMLGARENRLRLARMNRSLSPHPCLODRKDFGLPQEMVEGQLOKQDAISVLHEM 83	
QY 61 LQOSFNLFTYHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMBEEDSELGNMDDPIVTV 120	
Db 84 LQOCLNLFYTEHSSAAWNTLLLEQLCTGLQOQLDHLDTCRGQVMBEEDSELGNMDDPIVTV 143	
QY 121 KKYFGIYDYLOEKGYSDCAWEIVRVMRALTIVSTTLQKRLTKMGDDLNS 171	
Db 144 KKYFGIHYVLKEKGYSDCAWEIIRVMRALTSSSTTLQKRLTKMGDDLNS 194	
RESULT 15	
A53746	
interferon, trophoblast - human	
C:Species: Homo sapiens (man)	
C>Date: 07-Oct-1994 #sequence_revision 07-Oct-1994 #text_change 09-Jul-2004	
C:Accession: A53746	
R:Whaley, A.E.; Meka, C.S.R.; Harbison, L.A.; Hunt, J.S.; Imakawa, K. J. Biol. Chem. 269, 10864-10868, 1994	
A:Title: Identification and cellular localization of unique interferon mRNA from human pJ	
A:Reference number: A53746; MUID:94193794; PMID:7511610	
A:Accession: A53746	
A:Status: preliminary	
A:Molecule type: mRNA	
A:Residues: 1-195 <WHA>	
A:Cross-references: UNIPROT:P37290; GB:L25664; NID:g479010; PIDN:AAA36123.1; PID:g479011	
C:Superfamily: interferon alpha	
Query Match 67.3%; Score 610; DB 2; Length 195;	
Best Local Similarity 68.6%; Pred. No. 1.9e-48;	
Matches 118; Conservative 20; Mismatches 34; Indels 0; Gaps 0;	
QY 1 CYLSRLMLDARENKLLDRMNRSLSPHSCLQDRKDFGLPQEMVEGQLOKQDAFPVLYEM 60	
Db 24 CDLSQNHVLVGRKNRLDDEMRLSPHFCLODRKDFGLPQEMVEGQLOEQAQISVLHEM 83	
QY 61 LQOSFNLFTYHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMBEEDSELGNMDDPIVTV 120	
Db 84 LQOSFNLFTYHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMBEEDSELGNMDDPIVTV 143	
QY 121 KKYFGIYDYLOEKGYSDCAWEIVRVMRALTIVSTTLQKRLTKMGDDLNSP 172	
Db 144 KKYFGIHYVLKEKGYSDCAWEIVRVMRALTIVSTTLQKRLTKMGDDLSSP 195	

Search completed: October 28, 2005, 15:00:53  
Job time : 26 secs

THIS PAGE BLANK (USFC)



GenCore version 5.1.6  
Copyright (c) 1993 - 2005 Compugen Ltd.

OM protein - protein search, using sw model

Run on: October 28, 2005, 14:49:06 ; Search time 115.5 Seconds  
(without alignments)  
762.577 Million cell updates/sec

Title: US-10-719-472-3

Perfect score: 907

Sequence: 1 CYLSRLMLDARENKLLDR.....TVSTTLQKRLTKXGDLNSP 172

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : Uniprot 03.\*

1: uniprot\_sprot.\*  
2: uniprot\_trembl.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match %	Length	DB ID	Description
1	904	99.7	195	1 INT2 SHEEP	P56829 ovis aries
2	899	99.1	195	1 INT1 SHEEP	P56828 ovis aries
3	896	98.8	172	1 INT3 SHEEP	P56832 ovis aries
4	885	97.6	195	1 INT4 SHEEP	Q28594 ovis aries
5	881	97.1	195	1 INT5 SHEEP	Q28595 ovis aries
6	878	96.8	195	1 INT7 SHEEP	Q08071 ovis aries
7	872	96.1	195	1 INT9 SHEEP	Q08072 ovis aries
8	869	95.8	195	1 INT8 SHEEP	P28171 capra hircu
9	844	93.1	195	1 INT CAPRI	Q29429 ovis aries
10	834	92.0	195	1 INT6 SHEEP	Q6u249 capra hircu
11	828	91.3	195	2 Q6U250	Q6u250 capra hircu
12	828	91.3	195	2 Q6U250	Q6rfz8 ovis aries
13	820	90.4	172	2 Q6RFZ8	Q08053 ovis aries
14	810	89.3	195	1 INTA SHEEP	Q6u247 capra hircu
15	802	88.4	195	2 Q6U247	Q6u247 capra hircu
16	792	87.3	195	2 Q6U247	Q6u243 capra hircu
17	784	86.4	195	2 Q6U242	Q6u242 capra hircu
18	782	86.2	195	1 INTB SHEEP	P28172 ovis aries
19	778	85.8	195	1 INT OVIMO	P15696 bos taurus
20	730	80.5	195	1 INT1 BOVIN	P56830 bos taurus
21	725	79.9	172	1 INT2 BOVIN	Q8mJ29 bos taurus
22	723	79.7	172	2 Q8MJ29	Q9mYK6 bos taurus
23	723	79.7	195	2 Q9MYK6	P56831 bos taurus
24	711	78.4	172	1 INT3 BOVIN	Q9GLI6 bos taurus
25	706	77.8	195	2 Q9GLI6	Q6duh3 bison bison
26	700	77.2	172	2 Q6UDH3	Q9g115 bos taurus
27	698	77.0	195	2 Q9GLI5	Q95187 giraffa cam
28	684	75.4	195	1 INT GIRCA	O46633 cervus elap
29	654	72.1	195	1 INT CEREL	P37290 homo sapien
30	610	67.3	195	1 INT1 HUMAN	Q7m2y7 ovis aries
31	609	67.1	195	2 Q7M2Y7	

32 588 64.8 195 2 P28170  
33 586 64.6 195 2 Q28561  
34 583 64.3 195 1 INO1 BOVIN  
35 531 58.5 129 2 Q6SMQ8  
36 514.5 56.7 190 2 Q29085  
37 500 55.1 195 1 INO2 HORSE  
38 489.5 54.0 190 2 Q29098  
39 474 52.3 195 1 INO1 HUMAN  
40 470.5 51.9 179 2 Q29084  
41 463 51.0 174 2 Q13168  
42 443 48.8 195 1 INO1 HORSE  
43 441 48.6 189 1 INAS HUMAN  
44 441 48.6 189 1 INAD HUMAN  
45 439 48.4 189 1 INAG HUMAN

#### ALIGNMENTS

RESULT 1  
ID INT2 SHEEP STANDARD; PRT; 195 AA.  
AC P56829; P08316;  
DT 01-AUG-1988 (Rel. 08, Created)  
DT 30-MAY-2000 (Rel. 39, Last sequence update)  
DE Interferon tau-2 precursor (IFN-tau2) (Trophoblast protein-1) (TP-1)  
DE (Trophoblastin) (Antitileolysin) (Trophoblast antitileolytic protein).  
GN Name=IFNT2;  
OS Ovis aries (Sheep).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
OC Caprinae; Ovis.  
OX NCBI\_TaxID=9940;  
RN [1]  
RP SEQUENCE FROM N.A. (IFN-TAU2C).  
RX MEDLINE=90040431; PubMed=2530342;  
RA Stewart H.J., Flint A.P., Lamming G.E., McCann S.H., Parkinson T.J.;  
RT "Antitileolytic effects of blastocyst-secreted interferon investigated in vitro and in vivo in the sheep";  
RL J. Reprod. Fertil. Suppl. 37:127-138 (1989).  
RN [2]  
RP SEQUENCE FROM N.A. (IFN-TAU2C).  
RX MEDLINE=89351557; PubMed=2475129;  
RA Stewart H.J., McCann S.H., Northrop A.J., Lamming G.E., Flint A.P.;  
RT "Sheep antitileolytic interferon: cDNA sequence and analysis of mRNA levels";  
RL J. Mol. Endocrinol. 2:65-70 (1989).  
RN [3]  
RP SEQUENCE FROM N.A. (IFN-TAU2C).  
RX TISSUE=Embryo;  
MEDLINE=89326151; PubMed=2753362; DOI=10.1016/0378-1119(89)90082-6;  
RA Charlier M., Hue D., Martal J., Gaye P.;  
RT "Cloning and expression of cDNA encoding ovine trophoblastin: its identity with a class-II alpha interferon";  
RL Gene 77:341-348 (1989).  
RN [4]  
RP SEQUENCE FROM N.A. (IFN-TAU2C).  
RX MEDLINE=91067497; PubMed=1701245;  
RA Klemann S.W., Imakawa K., Roberts R.M.;  
RT "Sequence variability among ovine trophoblast interferon cDNA";  
RL Nucleic Acids Res. 18:6724-6724 (1990).  
RN [5]  
RP SEQUENCE OF 24-195 FROM N.A. (IFN-TAU2A AND IFN-TAU2B).  
RC TISSUE=Embryo;  
RA Winkelman G.L., Roberts R.M., Peterson A.J., Alexenko A.P., Ealy A.D.;  
RT "Identification of the expressed forms of ovine interferon-tau in the peri-implantation conceptus: sequence relationships and comparative biological activities";  
RL Submitted (JUN-1999) to the EMBL/GenBank/DBJ databases.  
RN [6]  
RP SEQUENCE OF 24-68.  
RX MEDLINE=88137579; PubMed=3254170; DOI=10.1016/0014-5793(88)80574-X;

RA Charpigny G., Reinaud P., Huet J.-C., Guillemot M., Charlier M.,  
 RA Pernollet J.-C., Martal J.;  
 RT "High homology between a trophoblastic protein (trophoblastin)  
 RT isolated from ovine embryo and alpha-interferons.";  
 RL FEBS Lett. 228:12-16(1988).  
 RL [7]  
 RX FUNCTION.  
 RX MEDLINE=96174804; PubMed=8603586; DOI=10.1210/en.137.3.1144;  
 RA Spencer T.E., Bazer F.W.;  
 RT "Ovine interferon tau suppresses transcription of the estrogen  
 RT receptor and oxytocin receptor genes in the ovine endometrium.";  
 RL Endocrinology 137:1144-1147(1996).  
 RL [8]  
 RP CIRCULAR DICHOISM ANALYSIS AND 3D-STRUCTURE MODELING.  
 RX MEDLINE=95062134; PubMed=7971949;  
 RA Jarpe M.A., Johnson H.M., Bazer F.W., Ott T.L., Curto E.V.,  
 RA Krishna N.R., Pontzer C.H.;  
 RT "Predicted structural motif of IFN tau.";  
 RL Protein Eng. 7:863-867(1994).  
 RL [9]  
 RP 3D-STRUCTURE MODELING.  
 RX MEDLINE=96318252; PubMed=8746786;  
 RA Senda T., Saitoh S.-I., Mitsui Y., Li J., Roberts R.M.;  
 RA "A three-dimensional model of interferon-tau.";  
 RT "J. Interferon Cytokine Res. 15:1053-1060(1995).  
 RL [10]  
 RP REVIEW.  
 RX MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7;  
 RA Martal J.L., Chene N.M., Huynh L.P., L'Hardon R.M., Reinaud P.B.,  
 RA Guillemot M.M., Charlier M.A., Charpigny S.Y.;  
 RT "IFN-tau: a novel subtype I IFN1. Structural characteristics, non-  
 RT ubiquitous expression, structure-function relationships, a pregnancy  
 RT hormonal embryonic signal and cross-species therapeutic  
 RT potentialities.";  
 RL Biochimie 80:755-777(1998).  
 CC -!- FUNCTION: Paracrine hormone primarily responsible for maternal  
 CC recognition of pregnancy. Interacts with endometrial receptors.  
 CC probably type I interferon receptors, and blocks estrogen receptor  
 CC expression, preventing the estrogen-induced increase in oxytocin  
 CC receptor expression in the endometrium. This results in the  
 CC suppression of the pulsatile endometrial release of the luteolytic  
 CC hormone prostaglandin F2-alpha, hindering the regression of the  
 CC corpus luteum (luteolysis) and therefore a return to ovarian  
 CC cyclicity. This, and a possible direct effect of IFN-tau on  
 CC prostaglandin synthesis, leads in turn to continued ovarian  
 CC progesterone secretion, which stimulates the secretion by the  
 CC endometrium of the nutrients required for the growth of the  
 CC conceptus. In summary, displays particularly high antiviral and  
 CC antiproliferative potency concurrently with particular weak  
 CC cytotoxicity, high antiluteolytic activity and immunomodulatory  
 CC properties. In contrast with other IFNs, IFN-tau is not virally  
 CC inducible.  
 CC -!- SUBCELLULAR LOCATION: Secreted into the uterine lumen.  
 CC -!- TISSUE SPECIFICITY: Constitutively and exclusively expressed in  
 CC the mononuclear cells of the extra-embryonic trophoctoderm.  
 CC -!- DEVELOPMENTAL STAGE: Major secretory product synthesized by the  
 CC sheep conceptus between days 13 and 21 of pregnancy.  
 CC -!- POLYMORPHISM: There seems to be three variants of IFN-tau 2:  
 CC A/P8V2/P7 (shown here), B/P8V4 and C/P8.  
 CC -!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from  
 CC IFN-omega genes in the ruminantia suborder and have continued to  
 CC duplicate independently in different lineages of the ruminantia.  
 CC They encode for proteins very similar in sequence but with  
 CC different biological potency and pattern of expression.  
 CC -!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-  
 CC alphaII subfamily.  
 CC -----  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -  
 CC the European Bioinformatics Institute. There are no restrictions on its  
 CC use by non-profit institutions as long as its content is in no way  
 CC modified and this statement is not removed. Usage by and for commercial  
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>)

or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch).  
 -----  
 CC EMBL; X07920; CAA30753.1; -;  
 CC EMBL; M26386; AAA31584.1; -;  
 CC EMBL; X56344; CAA39784.1; -;  
 CC EMBL; X56345; CAA39785.1; -;  
 CC EMBL; AF158818; AAD44970.1; -;  
 CC EMBL; AF158820; AAD44972.1; -;  
 CC PIR; S03799; JS0204.  
 CC HSPF; P56828; IBSL.  
 CC InterPro; IPR009079; 4\_helix\_cytokine.  
 CC InterPro; IPR000471; Interferon\_abd.  
 CC Pfam; PF00143; Interferon; 1.  
 CC PRINTS; PR00266; INTERFERONAB.  
 CC ProDom; PD000550; Interferon\_abd; 1.  
 CC PROSITE; PS00252; INTERFERON\_A\_B\_D; 1.  
 CC Antiviral; Cytokine; Direct protein sequencing; Hormone;  
 KW Multigene family; Polymorphism; Pregnancy; Signal.  
 FT SIGNAL 1 23  
 FT CHAIN 24 195 Interferon tau-2.  
 FT DISULFID 24 122 By similarity.  
 FT DISULFID 52 162 By similarity.  
 FT VARIANT 106 106 E -> D (in IFN-tau2C).  
 FT VARIANT 130 130 E -> K (in IFN-tau2B).  
 SQ SEQUENCE 195 AA; 22192 MW; EC4DEE507C269C67 CRC64;  
 Query Match 99.7%; Score 904; DB 1; Length 195;  
 Best Local Similarity 99.4%; Pred. No. 1.7e-75;  
 Matches 171; Conservative 1; Mismatches 0; Indels 0; Gaps 0;  
 Qy 1 CYLSERMLDARENKLLDRNRLSPHSCLDQRKDFGLPQEMVSGDQLQKDAQFPVLVEM 60  
 Db 24 CYLSQRLMLDARENKLLDRNRLSPHSCLDQRKDFGLPQEMVSGDQLQKDAQFPVLVEM 83  
 Qy 61 LQSQFNLFYTEHSSAAWDTTLLEQLCTGLQQLDHLDTCRGVNGEEDSELGNMDPIVTV 120  
 Db 84 LQSQFNLFYTEHSSAAWDTTLLEQLCTGLQQLDHLDTCRGVNGEEDSELGNMDPIVTV 143  
 Qy 121 KKYPQGYDYLOEKYSDCAMEIVRVMRALTVTSTTLOKRLTKMGGDLNSP 172  
 Db 144 KKYPQGYDYLOEKYSDCAMEIVRVMRALTVTSTTLOKRLTKMGGDLNSP 195  
 RESULT 2  
 INT1\_SHEEP STANDARD; PRT; 195 AA.  
 ID INT1\_SHEEP  
 AC P56828; P08316;  
 DT 01-AUG-1988 (Rel. 08, Created)  
 DT 01-NOV-1990 (Rel. 16, Last sequence update)  
 DT 25-OCT-2004 (Rel. 45, Last annotation update)  
 DE Interferon tau-1 precursor (IFN-tau1) (Trophoblast protein-1) (TP-1)  
 DE (Trophoblastin) (Antiluteolysin) (Trophoblast antiluteolytic protein).  
 GN Name=IFN1; Synonyms=OTP;  
 OS Ovis aries (Sheep).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Caprinae; Ovis.  
 OX NCBI\_TaxID=9940;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Trophoblast;  
 RA MEDLINE=86065855; PubMed=2446135; DOI=10.1038/330377a0;  
 RA Imakawa K., Antony R.V., Kazemi M., Marotti K.R., Polites H.G.,  
 RA Roberts R.M.;  
 RT "Interferon-like sequence of ovine trophoblast protein secreted by  
 RT embryonic trophoctoderm.";  
 RL Nature 330:377-379(1987).  
 RL [2]  
 RP FUNCTION.  
 RA MEDLINE=96174804; PubMed=8603586; DOI=10.1210/en.137.3.1144;  
 RA Spencer T.E., Bazer F.W.;  
 RT "Ovine interferon tau suppresses transcription of the estrogen  
 RT receptor and oxytocin receptor genes in the ovine endometrium.";  
 RL Nature 330:377-379(1987).  
 RL [2]

Endocrinology 137:1144-1147(1996).

[3] CIRCULAR DICHROISM ANALYSIS, AND 3D-STRUCTURE MODELING.

RX MEDLINE=95062134; PubMed=7971949;

RA Jarpe M.A., Johnson H.M., Bazer F.W., Ott T.L., Curto E.V.,

RA Krishna N.R., Pontzer C.H.;

RT "Predicted structural motif of IFN tau.";

RL Protein Eng. 7:863-867(1994).

[4] 3D-STRUCTURE MODELING.

RX MEDLINE=96318252; PubMed=8746786;

RA Senda T., Saitoh S.-I., Mitau Y., Li J., Roberts R.M.;

RT "A three-dimensional model of interferon-tau.";

RL J. Interferon Cytokine Res. 15:1053-1060(1995).

[5] REVIEW.

RX MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7;

RA Martel J.L., Chene N.M., Huynh L.P., L'Haron R.M., Reinaud P.B.,

RA Guillonot M.W., Charlier M.A., Charpigny S.Y.;

RT "IFN-tau: a novel subtype I IFN. Structural characteristics, non-

RT ubiquitous expression, structure-function relationships, a pregnancy

RT hormonal embryonic signal and cross-species therapeutic

RT potentialities.";

RL Biochimie 80:755-777(1998).

-!- FUNCTION: Paracrine hormone primarily responsible for maternal

CC recognition of pregnancy. Interacts with endometrial receptors,

CC probably type I interferon receptors, and blocks estrogen receptor

CC expression, preventing the estrogen-induced increase in oxytocin

CC receptor expression in the endometrium. This results in the

CC suppression of the pulsatile endometrial release of the luteolytic

CC hormone prostaglandin F2-alpha, hindering the regression of the

CC corpus luteum (luteolysis) and therefore a return to ovarian

CC cyclicity. This, and a possible direct effect of IFN-tau on

CC prostaglandin synthesis, leads in turn to continued ovarian

CC progesterone secretion, which stimulates the secretion by the

CC endometrium of the nutrients required for the growth of the

CC conceptus. In summary, displays particularly high antiviral and

CC antiproliferative potency concurrently with particular weak

CC cytotoxicity, high antiluteolytic activity and immunomodulatory

CC properties. In contrast with other IFNs, IFN-tau is not virally

CC inducible.

-!- SUBCELLULAR LOCATION: Secreted into the uterine lumen.

-!- TISSUE SPECIFICITY: Constitutively and exclusively expressed in

CC the mononuclear cells of the extra-embryonic trophoctoderm.

-!- DEVELOPMENTAL STAGE: Major secretory product synthesized by the

CC sheep conceptus between days 13 and 21 of pregnancy.

-!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from

CC IFN-omega genes in the ruminantia suborder and have continued to

CC duplicate independently in different lineages of the ruminantia.

CC They encode for proteins very similar in sequence but with

CC different biological potency and pattern of expression.

-!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-

CC alphaII subfamily.

-----

This SWISS-PROT entry is copyright. It is produced through a collaboration

CC between the Swiss Institute of Bioinformatics and the EMBL outstation -

CC the European Bioinformatics Institute. There are no restrictions on its

CC use by non-profit institutions as long as its content is in no way

CC modified and this statement is not removed. Usage by and for commercial

CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>

CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).

-----

EMBL; Y00287; CAA68396.1; -

DR PIR; S03799; JS0204.

DR PDB; 1BSL; X-ray; @=24-195.

DR InterPro; IPR009079; 4 helix\_cytokine.

DR InterPro; IPR000471; Interferon\_abd.

DR Pfam; PF00143; Interferon; 1.

DR PRINTS; PR00266; INTERFERONAB.

DR ProDom; PD000550; Interferon abd; 1.

DR PROSITE; PS00252; INTERFERON A B D; 1.

3D-structure; Antiviral; Cytokine; Hormone; Multigene family;

KW Pregnancy; Signal.

FT SIGNAL 1 23 By similarity.

FT CHAIN 24 195 Interferon tau-1.

FT DISULFID 24 122 By similarity.

FT DISULFID 52 162 By similarity.

FT TURN 25 26

FT HELIX 27 46

FT TURN 47 47

FT TURN 63 63

FT HELIX 64 68

FT TURN 69 69

FT HELIX 73 95

FT TURN 96 97

FT TURN 100 101

FT HELIX 103 122

FT HELIX 138 156

FT TURN 157 159

FT HELIX 161 186

SQ SEQUENCE 195 AA; 22192 MW; A4965AE25DEASBC9 CRC64;

Query Match 99.1%; Score 899; DB 1; Length 195;

Best Local Similarity 98.8%; Pred. No. 5e-75;

Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 CYLSERMLDARENKLLDRNMRLSPHSCLOQRKDFGLPQEMVEGDLQKQDAFPVLYEM 60

DB 24 CYLSERMLDARENKLLDRNMRLSPHSCLOQRKDFGLPQEMVEGDLQKQDAFPVLYEM 83

QY 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQQQLDHLDCRQGVMGEEDESELGNMDFIVT 120

DB 84 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQQQLDHLDCRQGVMGEEDESELGNMDFIVT 143

QY 121 KKYFGIYDYLOEKGYSDCAMEIVRVMRALTVTTLQKRLTKMGDLNSP 172

DB 144 KKYFGIYDYLOEKGYSDCAMEIVRVMRALTVTTLQKRLTKMGDLNSP 195

RESULT 3

ID INT3 SHEEP STANDARD; PRT; 172 AA.

AC P56832;

DT 30-MAY-2000 (Rel. 39, Created)

DT 30-MAY-2000 (Rel. 39, Last sequence update)

DT 05-JUL-2004 (Rel. 44, Last annotation update)

DE Interferon tau-3 (IFN-tau3) (Trophoblast protein-1) (TP-1)

DE (Trophoblastin) (Antiluteolysin) (Trophoblast antiluteolytic protein).

GN Name=IFNT3;

OS Ovis aries (Sheep).

OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;

OC Caprinae; Ovis.

OX NCBI\_TaxID=9940;

RN [1] SEQUENCE FROM N.A.

RP TISSUE=Embryo;

RA Winkelman G.L., Roberts R.M., Peterson A.J., Alexenko A.P., Ealy A.D.;

RT "Identification of the expressed forms of ovine interferon-tau in the

RT peri-implantation conceptus: sequence relationships and comparative

RT biological activities.";

RL Submitted (JUN-1999) to the EMBL/GenBank/DBJ databases.

RN [2] FUNCTION.

RX MEDLINE=96174804; PubMed=8603586; DOI=10.1210/en.137.3.1144;

RA Spencer T.E., Bazer F.W.;

RT "Ovine interferon tau suppresses transcription of the estrogen

RT receptor and oxytocin receptor genes in the ovine endometrium.";

RL Endocrinology 137:1144-1147(1996).

RN [3] CIRCULAR DICHROISM ANALYSIS, AND 3D-STRUCTURE MODELING.

RX MEDLINE=95062134; PubMed=7971949;

RA Jarpe M.A., Johnson H.M., Bazer F.W., Ott T.L., Curto E.V.,

RA Krishna N.R., Pontzer C.H.;

RT "Predicted structural motif of IFN tau.";

RL Protein Eng. 7:863-867(1994).





```

CC different biological potency and pattern of expression.
CC -!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-
CC alphaII subfamily.
CC -----
CC This SWISS-PROT entry is copyrighted. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
CC EMBL; X56342; CAA39782.1; -.
CC HSSP; P56828; 1BSL.
CC InterPro; IPR009079; 4_helix_cytokine.
CC InterPro; IPR000471; Interferon_abd.
CC Pfam; PF00143; Interferon; 1.
CC PRINTS; PR00266; INTERFERONAB.
CC PROSITE; PS00252; INTERFERON_A_B_D; 1.
CC Antiviral; Cytokine; Hormone; Multigene family; Pregnancy; Signal.
FT SIGNAL 1 23 By similarity.
FT CHAIN 24 195 Interferon tau-5.
FT DISULFID 24 122 By similarity.
FT DISULFID 52 162 By similarity.
SQ SEQUENCE 195 AA; 22163 MW; 14EA9038CB60A562 CRC64;

Query Match 97.1%; Score 881; DB 1; Length 195;
Best Local Similarity 96.5%; Pred. No. 2.3e-73;
Matches 166; Conservative 5; Mismatches 1; Indels 0; Gaps 0;

QY 1 CYLSRLMLDARENKLDNRNMLSPHSCLODRKDFGLPQEMVEGDQLQKQAPFVLVEM 60
Db |||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:
24 CYLSRLMLDAKENKLDNRNMLSPHSCLODRKDFGLPQEMVEGDQLQKQAPFVLVEM 83
QY 61 LQOSFNLFYTHSSAAWDTLLLEQLCTGLQQLDHLDTCRGVMEEDSELGNMDPIVTV 120
Db |||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:
84 LQOSFNLFYTHSSAAWDTLLLEQLCTGLQQLDHLDTCRGVMEEDSELGNMDPIVTV 143
QY 121 KKYFGIYDYLOEKGYSCAEIVRVEMMRALTIVSTTLQKRLTMKGGDLNSP 172
Db |||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:||||:
144 KKYFGIHYDLOEKGYSCAEIVRVEMMRALTIVSTTLQKRLTMKGGDLNSP 195

RESULT 6
ID INT7_SHEEP STANDARD; PRT; 195 AA.
AC Q08071;
DT 30-MAY-2000 (Rel. 39, Created)
DT 30-MAY-2000 (Rel. 39, Last sequence update)
DT 05-JUL-2004 (Rel. 44, Last annotation update)
DE Interferon tau-7 precursor (IFN-tau7) (Trophoblast protein-1) (TP-1)
DE (Trophoblastin) (Antileuteolysin) (Trophoblast antileuteolytic protein)
DE (TP-07).
GN Name=IFNT7;
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Caprinae; Ovis.
OX NCBI_TaxID=9940;
RN [1]_
RP SEQUENCE FROM N.A.
RC TISSUE=Trophectoderm;
RX MEDLINE=93250155; PubMed=8485241;
RA Nephew K.P., Whaley A.E., Christenson R.K., Imakawa K.;
RT "Differential expression of distinct mRNAs for ovine trophoblast
RL protein-1 and related sheep type I interferons.";
RN [2]_
RP FUNCTION.
RX MEDLINE=96174804; PubMed=8603586; DOI=10.1210/en.137.3.1144;
RA Spencer T.E., Bazer F.W.;
RT "Ovine interferon tau suppresses transcription of the estrogen
KW Antiviral; Cytokine; Hormone; Multigene family; Pregnancy; Signal.

```

```

RT receptor and oxytocin receptor genes in the ovine endometrium.";
RN Endocrinology 137:1144-1147(1996).
RL [3]_
RP CIRCULAR DICHOISM ANALYSIS, AND 3D-STRUCTURE MODELING.
RX MEDLINE=95062134; PubMed=7971949;
RA Jarpe M.A., Johnson H.M., Bazer F.W., Ott T.L., Curto E.V.,
RA Krishna N.R., Pontzer C.H.;
RT "Predicted structural motif of IFN tau.";
RL protein Eng. 7:863-867(1994).
RL [4]_
RP 3D-STRUCTURE MODELING.
RX MEDLINE=96318252; PubMed=8746786;
RA Senda T., Saitoh S.-I., Mitsui Y., Li J., Roberts R.M.;
RT "A three-dimensional model of interferon-tau.";
RL J. Interferon Cytokine Res. 15:1053-1060(1995).
RN [5]_
RP REVIEW.
RX MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7;
RA Martal J.L., Chene N.M., Huynh L.P., L'Hardon R.M., Reinaud P.B.,
RA Guillonot M., Charlier M.A., Charpigny S.V.;
RT "IFN-tau: a novel subtype I IFN1. Structural characteristics, non-
RT ubiquitous expression, structure-function relationships, a pregnancy
RT hormonal embryonic signal and cross-species therapeutic
RT potentialities.";
RL Biochimie 80:755-777(1998).
CC -!- FUNCTION: Paracrine hormone primarily responsible for maternal
CC recognition of pregnancy. Interacts with endometrial receptors,
CC probably type I interferon receptors, and blocks estrogen receptor
CC expression, preventing the estrogen-induced increase in oxytocin
CC receptor expression in the endometrium. This results in the
CC suppression of the pulsatile endometrial release of the luteolytic
CC hormone prostaglandin F2-alpha, hindering the regression of the
CC corpus luteum (luteolysis) and therefore a return to ovarian
CC cyclicity. This, and a possible direct effect of IFN-tau on
CC prostaglandin synthesis, leads in turn to continued ovarian
CC progesterone secretion, which stimulates the secretion by the
CC endometrium of the nutrients required for the growth of the
CC conceptus. In summary, displays particularly high antiviral and
CC antiproliferative potency concurrently with particular weak
CC cytotoxicity, high antileuteolytic activity and immunomodulatory
CC properties. In contrast with other IFNs, IFN-tau is not virally
CC inducible.
CC -!- SUBCELLULAR LOCATION: Secreted into the uterine lumen.
CC -!- TISSUE SPECIFICITY: Constitutively and exclusively expressed in
CC the mononuclear cells of the extra-embryonic trophoctoderm.
CC -!- DEVELOPMENTAL STAGE: Major secretory product synthesized by the
CC sheep conceptus between days 13 and 21 of pregnancy.
CC -!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from
CC IFN-omega genes in the ruminantia suborder and have continued to
CC duplicate independently in different lineages of the ruminantia.
CC They encode for proteins very similar in sequence but with
CC different biological potency and pattern of expression.
CC -!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-
CC alphaII subfamily.
CC -----
CC This SWISS-PROT entry is copyrighted. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
CC EMBL; M88771; AAA31505.1; -.
CC PIR; I47068; I47068.
CC HSSP; P56828; 1BSL.
CC InterPro; IPR009079; 4_helix_cytokine.
CC InterPro; IPR000471; Interferon_abd.
CC Pfam; PF00143; Interferon; 1.
CC PRINTS; PR00266; INTERFERONAB.
CC PROSITE; PS000550; Interferon_abd; 1.
CC PROSITE; PS00252; INTERFERON_A_B_D; 1.
KW Antiviral; Cytokine; Hormone; Multigene family; Pregnancy; Signal.

```

```

FT SIGNAL 1 23 By similarity.
FT CHAIN 24 122 Interferon tau-7.
FT FT DISULFID 24 122 By similarity.
FT FT DISULFID 52 162 By similarity.
SQ SEQUENCE 195 AA; 22223 MW; 144AEBE80ABAB48 CRC64;

Query Match 96.8%; Score 878; DB 1; Length 195;
Best Local Similarity 96.5%; Pred. No. 4.4e-73;
Matches 166; Conservative 3; Mismatches 3; Indels 0; Gaps 0;

QY 1 CYLSERMLDARENKLLDRMNLSPHSCLQDRKDFGLPQEMVEGDLQKQDQAPFVLYEM 60
DB 24 CYLSRRLMDARENKLLDRMNLSPHSCLQDRKDFGLPQEMVEGDLQKQDQAPFVLYEM 83
QY 61 LQOSFNLFTYHSSAAWDTTLLQGLCTGLQQLDHLDTCRGQVMGEDESELGNMDDPIVTV 120
DB 84 LQOSFNLFTYHSSAAWDTTLLQGLCTGLQQLDHLDTCRGQVMGEDESELGNMDDPIVTV 143
QY 121 KKYFGQIYDYLQEKGYSDCAWEIVRVMRALTTSVTTLOKRLTKMGDDLNSP 172
DB 144 KKYFGQIHYDYLQEKGYSDCAWEIVRVMRALTTSVTTLOKRLTKMGDDLNSP 195

RESULT 7
INT9_SHEEP STANDARD; PRT; 195 AA.
AC Q08070;
DT 30-MAY-2000 (Rel. 39, Created)
DT 30-MAY-2000 (Rel. 39, Last sequence update)
DT 05-JUL-2004 (Rel. 44, Last annotation update)
DE Interferon tau-9 precursor (IFN-tau9) (Trophoblast protein-1) (TP-1)
DE (Trophoblastin) (Antitileolysin) (Trophoblast antitileolytic protein)
DE (TP-010)
DE Name=IFNT9;
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Caprinae; Ovis.
OX NCBI_TaxID=9940;
RN [1]_TaxID=9940;
RP SEQUENCE FROM N.A.
RC TISSUE=Trophocotoderm;
RX MEDLINE=93250155; PubMed=8485241;
RA Nephew K.P., Whaley A.E., Christenson R.K., Imakawa K.;
RT "Differential expression of distinct mRNAs for ovine trophoblast
RT protein-1 and related sheep type I interferons.";
RL Biol. Reprod. 48:768-778(1993).
RN [2]
RP FUNCTION.
RX MEDLINE=96174804; PubMed=8603586; DOI=10.1210/en.137.3.1144;
RA Spencer T.E., Bazer F.W.;
RT "Ovine interferon tau suppresses transcription of the estrogen
RT receptor and oxytocin receptor genes in the ovine endometrium.";
RL Endocrinology 137:1144-1147(1996).
RN [3]
RP CIRCULAR DICHOISM ANALYSIS, AND 3D-STRUCTURE MODELING.
RX MEDLINE=95062134; PubMed=7971949;
RA Jarpe M.A., Johnson H.M., Bazer F.W., Ott T.L., Curto E.V.,
RA Krishna N.R., Pontzer C.H.;
RT "Predicted structural motif of IFN tau.";
RL Protein Eng. 7:863-867(1994).
RN [4]
RP 3D-STRUCTURE MODELING.
RX MEDLINE=96318252; PubMed=8746786;
RA Senda T., Saitoh S.-I., Mitsui Y., Li J., Roberts R.M.;
RT "A three-dimensional model of interferon-tau.";
RL J. Interferon Cytokine Res. 15:1053-1060(1995).
RN [5]
RP REVIEW.
RX MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7;
RA Martal J.L., Chene N.M., Huynh L.P., L'Haridon R.M., Reinaud P.B.,
RA Guillomot M.W., Charlier M.A., Charpigny S.Y.;
RT "IFN-tau: a novel subtype I IFN1. Structural characteristics, non-
```

```

RT ubiquitous expression, structure-function relationships, a pregnancy
RT hormonal embryonic signal and cross-species therapeutic
RT potentialities.";
RL Biochimie 80:755-777(1998).
CC -!- FUNCTION: Paracrine hormone primarily responsible for maternal
CC recognition of pregnancy. Interacts with endometrial receptors,
CC probably type I interferon receptors, and blocks estrogen receptor
CC expression, preventing the estrogen-induced increase in oxytocin
CC receptor expression in the endometrium. This results in the
CC suppression of the pulsatile endometrial release of the luteolytic
CC hormone prostaglandin F2-alpha, hindering the regression of the
CC corpus luteum (luteolysis) and therefore a return to ovarian
CC cyclicity. This, and a possible direct effect of IFN-tau on
CC prostaglandin synthesis, leads in turn to continued ovarian
CC progesterone secretion, which stimulates the secretion by the
CC endometrium of the nutrients required for the growth of the
CC conceptus. In summary, displays particularly high antiviral and
CC antiproliferative potency concurrently with particular weak
CC cytotoxicity, high antiluteolytic activity and immunomodulatory
CC properties. In contrast with other IFNs, IFN-tau is not virally
CC inducible.
CC -!- SUBCELLULAR LOCATION: Secreted into the uterine lumen.
CC -!- TISSUE SPECIFICITY: Constitutively and exclusively expressed in
CC the mononuclear cells of the extra-embryonic trophocotoderm.
CC -!- DEVELOPMENTAL STAGE: Major secretory product synthesized by the
CC sheep conceptus between days 13 and 21 of pregnancy.
CC -!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from
CC IFN-omega genes in the ruminantia suborder and have continued to
CC duplicate independently in different lineages of the ruminantia.
CC They encode for proteins very similar in sequence but with
CC different biological potency and pattern of expression.
CC -!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-
CC alpha subfamily.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL Outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
EMBL; M88773; AAA31503.1; -.
PIR; I47066; I47066.
HSP; P56828; IBSL.
InterPro; IPR009079; 4_helix_cytokine.
InterPro; IPR000471; Interferon_abd.
Pfam; PF00143; Interferon; 1.
PRINTS; PR00266; INTERFERONAB.
ProDom; PD000550; Interferon_abd; 1.
PROSITE; PS00252; INTERFERON_A_B_D; 1.
KW Antiviral; Cytokine; Hormone; Multigene family; Pregnancy; Signal.
FT SIGNAL 1 23 By similarity.
FT CHAIN 24 195 Interferon tau-9.
FT DISULFID 24 122 By similarity.
FT DISULFID 52 162 By similarity.
SQ SEQUENCE 195 AA; 22127 MW; 00DE9CB089D98493 CRC64;

Query Match 96.1%; Score 872; DB 1; Length 195;
Best Local Similarity 95.9%; Pred. No. 1.6e-72;
Matches 165; Conservative 5; Mismatches 2; Indels 0; Gaps 0;

QY 1 CYLSERMLDARENKLLDRMNLSPHSCLQDRKDFGLPQEMVEGDLQKQDQAPFVLYEM 60
DB 24 CYLSQRLMDARENKLLDRMNLSPHSCLQDRKDFGLPQEMVEGDLQKQDQAPFVLYEM 83
QY 61 LQOSFNLFTYHSSAAWDTTLLQGLCTGLQQLDHLDTCRGQVMGEDESELGNMDDPIVTV 120
DB 84 LQOTFNLFTYHSSAAWDTTLLQGLCTGLQQLDHLDTCRGQVMGEDESELGNMDDPIVTV 143
QY 121 KKYFGQIYDYLQEKGYSDCAWEIVRVMRALTTSVTTLOKRLTKMGDDLNSP 172
DB 144 KKYFGQIYDYLQEKGYSDCAWEIVRVMRALTTSVTTLOKRLTKMGDDLNSP 195
```









RT potentialities.";

RL Biochimie 80:755-777(1998).

CC -!- FUNCTION: Paracrine hormone primarily responsible for maternal

CC recognition of pregnancy. Interacts with endometrial receptors,

CC probably type I interferon receptors, and blocks estrogen receptor

CC expression, preventing the estrogen-induced increase in oxytocin

CC receptor expression in the endometrium. This results in the

CC suppression of the pulsatile endometrial release of the luteolytic

CC hormone prostaglandin P2-alpha, hindering the regression of the

CC corpus luteum (luteolysis) and therefore a return to ovarian

CC cyclicity. This, and a possible direct effect of IFN-tau on

CC prostaglandin synthesis, leads in turn to continued ovarian

CC progesterone secretion, which stimulates the secretion by the

CC endometrium of the nutrients required for the growth of the

CC conceptus. In summary, displays particularly high antiviral and

CC antiproliferative potency concurrently with particular weak

CC cytotoxicity, high antiluteolytic activity and immunomodulatory

CC properties. In contrast with other IFNs, IFN-tau is not virally

CC inducible.

CC -!- SUBCELLULAR LOCATION: Secreted into the uterine lumen.

CC -!- TISSUE SPECIFICITY: Constitutively and exclusively expressed in

CC the mononuclear cells of the extra-embryonic trophoctoderm.

CC -!- DEVELOPMENTAL STAGE: Major secretory product synthesized by the

CC sheep conceptus between days 13 and 21 of pregnancy.

CC -!- POLYMORPHISM: There seems to be four variants of IFN-tau 6:

CC A/P6V3, B/P6V2, C/P6V1 and D/P6/P12 (shown here).

CC -!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from

CC IFN-omega genes in the ruminantia suborder and have continued to

CC duplicate independently in different lineages of the ruminantia.

CC They encode for proteins very similar in sequence but with

CC different biological potency and pattern of expression.

CC -!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-

CC alpha1 subfamily.

CC -----

CC This SWISS-PROT entry is copyright. It is produced through a collaboration

CC between the Swiss Institute of Bioinformatics and the EMBL outstation -

CC the European Bioinformatics Institute. There are no restrictions on its

CC use by non-profit institutions as long as its content is in no way

CC modified and this statement is not removed. Usage by and for commercial

CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>

CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).

CC -----

DR EMBL; X56343; CAA39783.1; -.

DR EMBL; X56346; CAA39786.1; -.

DR EMBL; AF158823; AAD44975.1; -.

DR EMBL; AF158822; AAD44974.1; -.

DR EMBL; AF158821; AAD44973.1; -.

DR PIR; A61455; A61455.

DR HSP; P56828; IBSL.

DR InterPro; IPR009079; 4 helix cytokine.

DR InterPro; IPR000471; Interferon\_abd.

DR Pfam; PF00143; Interferon; 1.

DR PRINTS; PR00266; INTERFERONAB.

DR ProDom; PD000550; Interferon\_abd; 1.

DR PROSITE; PS00252; INTERFERON\_A\_B\_D; 1.

DR Antiviral; Cytokine; Glycoprotein; Hormone; Multigene family;

KW Polymorphism; Pregnancy; Signal.

FT SIGNAL 1 23 By similarity.

FT CHAIN 24 195 Interferon tau-6.

FT DISULFID 24 122 By similarity.

FT DISULFID 52 162 By similarity.

FT CARBOHYD 101 101 N-linked (GLCNac...) (Potential).

FT VARIANT 130 130 K -> E (in IFN-tau6A and IFN-tau6B).

FT VARIANT 136 136 K -> N (in IFN-tau6A, IFN-tau6B and IFN-tau6C).

FT VARIANT 188 188 T -> M (in IFN-tau6A).

FT SEQUENCE 195 AA; 22102 MW; C8428392E78CA387 CRC64;

Query Match 92.0%; Score 834; DB 1; Length 195;

Best Local Similarity 91.9%; Pred. No. 5.1e-69;

Matches 158; Conservative 7; Mismatches 7; Indels 0; Gaps 0;

Db 24 CYLSERMLDARENLKLLDRMNRSLPHSCLQDRKDFGLPQEMVEGDQLQKQAFSVLYEM 83

Qy 61 LQSFNLFYTEHSSAAWDTTLLEQLCTGLQOQLDHLDTCRQVNGEEDSELGNMDPIVTV 120

Db 84 LQSFNLFYTEHSSAAWNTTLLEQLCTGLQOQLDHLDTCRQVNGEEDSELGNMDPIVTV 143

Qy 121 KKYPQGIYDYLQEKGYSDCAWEIVRVMNRALTSTTLQKELTKMGGDLNSP 172

Db 144 KKYPQGIHVDYLQEKGYSDCAWEIVRVMNRALTSTTLQKRLTKMGGDLNSP 195

RESULT 11

Q6UZ49 PRELIMINARY; PRT; 195 AA.

AC Q6UZ49;

DT 05-JUL-2004 (TrEMBLrel. 27, Created)

DT 05-JUL-2004 (TrEMBLrel. 27, Last sequence update)

DT 05-JUL-2004 (TrEMBLrel. 27, Last annotation update)

DE Interferon-tau 3.

OS Capra hircus (Goat).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;

OC Caprinae; Capra.

OX NCBI\_TaxID=9925;

RN [1]

RP SEQUENCE FROM N.A.

RA Ealy A.D., Wagner S.K., Sheils A.E., Whitley N.C., Kiesling D.O.,

RA Barbato G.F.;

RL Submitted (JUL-2003) to the EMBL/GenBank/DBJ databases.

CC -!- SIMILARITY: Belongs to the alpha/beta interferon family.

DR EMBL; AY357329; AAQ56198.1; -.

DR HSP; P56828; IBSL.

DR GO; GO:0005576; C:extracellular; IEA.

DR GO; GO:0005126; F:hematopoietin/interferon-class (D200-domain. .); IEA.

DR GO; GO:0006952; P:defense response; IEA.

DR InterPro; IPR009079; 4 helix cytokine.

DR InterPro; IPR000471; Interferon\_abd.

DR Pfam; PF00143; Interferon; 1.

DR PRINTS; PR00266; INTERFERONAB.

DR ProDom; PD000550; Interferon\_abd; 1.

DR SMART; SM00076; IFabd; 1.

DR PROSITE; PS00252; INTERFERON\_A\_B\_D; 1.

KW Antiviral; Cytokine.

SW SEQUENCE 195 AA; 22294 MW; 323B782D1D16569E CRC64;

Query Match 91.3%; Score 828; DB 2; Length 195;

Best Local Similarity 92.4%; Pred. No. 1.8e-68;

Matches 159; Conservative 5; Mismatches 8; Indels 0; Gaps 0;

Qy 1 CYLSERMLDARENLKLLDRMNRSLPHSCLQDRKDFGLPQEMVEGDQLQKQAFSVLYEM 60

Db 24 CYLSRRLMLDARENLRLDRMNRSLPHSCLQDRKDFGLPQEMVEGDQLQKQAFSVLYEM 83

Qy 61 LQSFNLFYTEHSSAAWDTTLLEQLCTGLQOQLDHLDTCRQVNGEEDSELGNMDPIVTV 120

Db 84 LQSFNLFYTEHSSAAWNTTLLEQLCTGLQOQLDHLDTCRQVNGEEDSELGNMDPIVTV 143

Qy 121 KKYPQGIYDYLQEKGYSDCAWEIVRVMNRALTSTTLQKELTKMGGDLNSP 172

Db 144 KKYPQGIHVDYLQEKGYSDCAWEIVRVMNRALTSTTLQKRLTKMGGDLNSP 195

RESULT 12

Q6UZ50 PRELIMINARY; PRT; 195 AA.

AC Q6UZ50;

DT 05-JUL-2004 (TrEMBLrel. 27, Created)

DT 05-JUL-2004 (TrEMBLrel. 27, Last sequence update)

DT 05-JUL-2004 (TrEMBLrel. 27, Last annotation update)

DE Interferon-tau 2b (interferon-tau 2a).

OS Capra hircus (Goat).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Caprinae; Capra.  
 OX NCBI\_TaxID=9925;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Ealy A.D., Wagner S.K., Sheils A.E., Whitley N.C., Kiesling D.O.,  
 RA Barbato G.F.;  
 RL Submitted (JUL-2003) to the EMBL/GenBank/DBJ databases.  
 CC -1- SIMILARITY: Belongs to the alpha/beta interferon family.  
 DR EMBL; AY357328; AAQ56197.1; -;  
 DR EMBL; AY357327; AAQ56196.1; -;  
 DR HSSP; P56828; 1B5L;  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0005126; F:hematopoietin/interferon-class (D200-domain. .; IEA.  
 DR GO; GO:0006952; P:defense response; IEA.  
 DR InterPro; IPR009079; 4 helix cytokine.  
 DR InterPro; IPR000471; Interferon\_abd.  
 DR Pfam; PF00143; Interferon; 1.  
 DR PRINTS; PR00266; INTERFERONAB.  
 DR ProDom; PD000550; Interferon\_abd; 1.  
 DR SMART; SM00076; IFabd; 1.  
 DR PROSITE; PS00252; INTERFERON\_A\_B\_D; 1.  
 KW Antiviral; Cytokine.  
 SQ SEQUENCE 195 AA; 22313 MW; C99AC236A716F654 CRC64;  
 Query Match 91.3%; Score 828; DB 2; Length 195;  
 Best Local Similarity 92.4%; Pred. No. 1.8e-68;  
 Matches 159; Conservative 5; Mismatches 8; Indels 0; Gaps 0;  
 QY 1 CYLSERLMLDARENKLLDRMNLSPHSCLQDRKDFGLPQEMVEGDLQKQAFVLYEM 60  
 DB 24 CYLSRRLMLDARENLLDRMNLSPHSCLQDRKDFGLPQEMVEGDLQKQAFVLYEM 83  
 QY 61 LQOSFNLFYTEHSSAAWDTLLSCLTGLQOQLDHLDTCRGVMGSEDSGLNMDPIVTV 120  
 DB 84 LQOTFNLFYTEHSSAAWDTLLSCLTGLQOQLDHLDTCRGVMGSEDSGLNMDPIVTV 143  
 QY 121 KKYFQGIYDLOEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDDLNSP 172  
 DB 144 KKYFQGIHDIYLOEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDDLNSP 195  
 RESULT 13  
 Q6RFZ8 PRELIMINARY; PRT; 172 AA.  
 ID Q6RFZ8 AC Q6RFZ8;  
 DT 05-JUL-2004 (TrEMBLrel. 27, Created)  
 DT 05-JUL-2004 (TrEMBLrel. 27, Last sequence update)  
 DE Interferon tau (Fragment).  
 OS Ovis aries (Sheep).  
 OC Mammalia; Eutheria; Chordata; Vertebrata; Euteleostomi;  
 OC Caprinae; Ovis.  
 OX NCBI\_TaxID=9940;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Wang X., Wang M., Xia C., Zhu D., Liou C., Bai Y.;  
 RL Submitted (DEC-2003) to the EMBL/GenBank/DBJ databases.  
 CC -1- SIMILARITY: Belongs to the alpha/beta interferon family.  
 DR EMBL; AY499657; AAR8592.1; -;  
 DR HSSP; P56828; 1B5L;  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0005126; F:hematopoietin/interferon-class (D200-domain. .; IEA.  
 DR GO; GO:0006952; P:defense response; IEA.  
 DR InterPro; IPR009079; 4 helix cytokine.  
 DR InterPro; IPR000471; Interferon\_abd.  
 DR Pfam; PF00143; Interferon; 1.  
 DR PRINTS; PR00266; INTERFERONAB.  
 DR ProDom; PD000550; Interferon\_abd; 1.  
 DR SMART; SM00076; IFabd; 1.  
 DR PROSITE; PS00252; INTERFERON\_A\_B\_D; 1.  
 KW Antiviral; Cytokine.

FT NON TER 1 1  
 SQ SEQUENCE 172 AA; 19992 MW; 65984B2F91335046 CRC64;  
 Query Match 90.4%; Score 820; DB 2; Length 172;  
 Best Local Similarity 91.9%; Pred. No. 8.6e-68;  
 Matches 158; Conservative 6; Mismatches 8; Indels 0; Gaps 0;  
 QY 1 CYLSERLMLDARENKLLDRMNLSPHSCLQDRKDFGLPQEMVEGDLQKQAFVLYEM 60  
 DB 1 CYLSQRMLDARENLLDRMNLSPHSCLQDRKDFGLPQEMVEGDLQKQAFVLYEM 60  
 QY 61 LQOSFNLFYTEHSSAAWDTLLSCLTGLQOQLDHLDTCRGVMGSEDSGLNMDPIVTV 120  
 DB 61 LQOTFNLFYTEHSSAAWDTLLSCLTGLQOQLDHLDTCRGVMGSEDSGLNMDPIVTV 120  
 QY 121 KKYFQGIYDLOEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDDLNSP 172  
 DB 121 KKYFQGIHDIYLOEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDDLNSP 172  
 RESULT 14  
 INTA SHEEP  
 ID INTA SHEEP STANDARD; PRT; 195 AA.  
 AC Q08053;  
 DT 30-MAY-2000 (Rel. 39, Created)  
 DT 30-MAY-2000 (Rel. 39, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Interferon tau-10 precursor (IFN-tau10) (Trophoblast protein-1) (TP-1)  
 DE (Trophoblastin) (Antiluteolysin) (Trophoblast antiluteolytic protein)  
 DE (TP-02).  
 GN Name=IFNT10;  
 OS Ovis aries (Sheep).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Caprinae; Ovis.  
 OX NCBI\_TaxID=9940;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Trophectoderm;  
 RX MEDLINE=93250155; PubMed=8485241;  
 RA Nephew K.P., Whaley A.E., Christenson R.K., Imakawa K.;  
 RT "Differential expression of distinct mRNAs for ovine trophoblast  
 protein-1 and related sheep type I interferons.";  
 RL Biol. Reprod. 48:768-778(1993).  
 RN [2]  
 RP FUNCTION.  
 RX MEDLINE=96174804; PubMed=8603586; DOI=10.1210/en.137.3.1144;  
 RA Spencer T.E., Bazer F.W.;  
 RT "Ovine interferon tau suppresses transcription of the estrogen  
 receptor and oxytocin receptor genes in the ovine endometrium.";  
 RL Endocrinology 137:1144-1147(1996).  
 RN [3]  
 RP CIRCULAR DICHOISM ANALYSIS, AND 3D-STRUCTURE MODELING.  
 RX MEDLINE=95062134; PubMed=7971949;  
 RA Jarpe M.A., Johnson H.M., Bazer F.W., Ott T.L., Curto E.V.,  
 RA Krishna N.R., Pontzer C.H.;  
 RT "Predicted structural motif of IFN tau.";  
 RL Protein Eng. 7:863-867(1994).  
 RN [4]  
 RP 3D-STRUCTURE MODELING.  
 RX MEDLINE=96318252; PubMed=8746786;  
 RA Senda T., Saitoh S.-I., Mitsui Y., Li J., Roberts R.M.;  
 RT "A three-dimensional model of interferon-tau.";  
 RL J. Interferon Cytokine Res. 15:1053-1060(1995).  
 RN [5]  
 RP REVIEW.  
 RX MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7;  
 RA Martal J.L., Chene N.M., Huynh L.P., L'Haron R.M., Reinaud P.B.,  
 RA Guillomot M.W., Charlier M.A., Charpigny S.Y.;  
 RT "IFN-tau: a novel subtype I IFN1. Structural characteristics, non-  
 ubiquitous expression, structure-function relationships, a pregnancy  
 hormonal embryonic signal and cross-species therapeutic  
 potentialities.";

RL Biochimie 80:755-777(1998).  
 CC -!- FUNCTION: Paracrine hormone primarily responsible for maternal  
 CC recognition of pregnancy. Interacts with endometrial receptors,  
 CC probably type I interferon receptors, and blocks estrogen receptor  
 CC expression, preventing the estrogen-induced increase in oxytocin  
 CC receptor expression in the endometrium. This results in the  
 CC suppression of the pulsatile endometrial release of the luteolytic  
 CC hormone prostaglandin F2-alpha, hindering the regression of the  
 CC corpus luteum (luteolysis) and therefore a return to ovarian  
 CC cyclicity. This, and a possible direct effect of IFN-tau on  
 CC prostaglandin synthesis, leads in turn to continued ovarian  
 CC progesterone secretion, which stimulates the secretion by the  
 CC endometrium of the nutrients required for the growth of the  
 CC conceptus. In summary, displays particularly high antiviral and  
 CC antiproliferative potency concurrently with particular weak  
 CC cytotoxicity, high anti-luteolytic activity and immunomodulatory  
 CC properties. In contrast with other IFNs, IFN-tau is not virally  
 CC inducible.  
 CC -!- SUBCELLULAR LOCATION: Secreted into the uterine lumen.  
 CC -!- TISSUE SPECIFICITY: Constitutively and exclusively expressed in  
 CC the mononuclear cells of the extra-embryonic trophoctoderm.  
 CC -!- DEVELOPMENTAL STAGE: Major secretory product synthesized by the  
 CC sheep conceptus between days 13 and 21 of pregnancy.  
 CC -!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from  
 CC IFN-omega genes in the ruminantia suborder and have continued to  
 CC duplicate independently in different lineages of the ruminantia.  
 CC They encode for proteins very similar in sequence but with  
 CC different biological potency and pattern of expression.  
 CC -!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-  
 CC alpha1 subfamily.  
 CC -----  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -  
 CC the European Bioinformatics Institute. There are no restrictions on its  
 CC use by non-profit institutions as long as its content is in no way  
 CC modified and this statement is not removed. Usage by and for commercial  
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>  
 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 DR EMBL; M88770; AA311504.1; -;  
 DR PIR; I47067; I47067.  
 DR HSP; P56828; IBSL.  
 DR InterPro; IPR000979; 4 helix cytokine.  
 DR InterPro; IPR000471; Interferon\_abd.  
 DR Pfam; PF00143; Interferon; 1  
 DR PRINTS; PR00266; INTERFERONAB.  
 DR ProDom; PD000550; Interferon\_abd; 1.  
 DR PROSITE; PS00252; INTERFERON\_A\_B\_D; 1.  
 KW Antiviral; Cytokine; Glycoprotein; Hormone; Multigene family;  
 KW Pregnancy; Signal.  
 FT SIGNAL 1 23 By similarity.  
 FT CHAIN 24 195 Interferon tau-10.  
 FT DISULFID 24 122 By similarity.  
 FT DISULFID 52 162 By similarity.  
 FT CARBOHYD 101 101 N-linked (GlcNAc...) (Potential).  
 SQ SEQUENCE 195 AA; 22069 MW; 16084C3184AC3963 CRC64;  
 Query Match 89.3%; Score 810; DB 1; Length 195;  
 Best Local Similarity 90.1%; Pred. No. 8.4e-67;  
 Matches 155; Conservative 8; Mismatches 9; Indels 0; Gaps 0;  
 QY 1 CYLSERLMLDARENILKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKDAQFPVLVEM 60  
 DB 24 CYLSRLMLDARENILRLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQEAQAFVLYEM 83  
 QY 61 LQQSFNLFYTEHSSAAWDTTLLLEQLCTGLQQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
 DB 84 LQQSFNLFHTERSAAWNTTLLLEQLCTGLQQLDHLDTCRGQVMGEEDSELGNMDPIVTV 143  
 QY 121 KKYFGIYDYLOEKGYSDCAWEIVRVMRALTTSVTLQKRLTKMGDLNSP 172  
 DB 144 KKYFGIYDYLOEKGYSDCAWEIVRVMRALTTSVTLQKRLTKMGDLNSP 195

RESULT 15  
 Q6UZ47 PRELIMINARY; PRT; 195 AA.  
 AC Q6UZ47;  
 DT 05-JUL-2004 (TrEMBLrel. 27, Created)  
 DT 05-JUL-2004 (TrEMBLrel. 27, Last sequence update)  
 DT 05-JUL-2004 (TrEMBLrel. 27, Last annotation update)  
 DE Interferon-tau 4b (Interferon-tau 4c) (Interferon-tau 4d) (Interferon-  
 DE tau 4e) (Interferon-tau 4a).  
 OS Capra hircus (Goat).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Caprinae; Capra.  
 OX NCBI\_TaxID=9925;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Ealy A.D., Wagner S.K., Sheils A.E., Whitley N.C., Kiesling D.O.,  
 RA Barbato G.F.;  
 RL Submitted (JUL-2003) to the EMBL/GenBank/DBJ databases.  
 CC -!- SIMILARITY: Belongs to the alpha/beta interferon family.  
 DR EMBL; AY357331; AAQ56280.1; -;  
 DR EMBL; AY357332; AAQ56201.1; -;  
 DR EMBL; AY357333; AAQ56202.1; -;  
 DR EMBL; AY357334; AAQ56203.1; -;  
 DR EMBL; AY357330; AAQ56199.1; -;  
 DR HSP; P56828; IBSL.  
 DR GO; GO:0005576; C:extracellular; IEA.  
 DR GO; GO:0005126; F:hematopoietin/interferon-class (D200-domain. . .; IEA.  
 DR GO; GO:0006952; P:defense response; IEA.  
 DR InterPro; IPR000979; 4 helix cytokine.  
 DR InterPro; IPR000471; Interferon\_abd.  
 DR Pfam; PF00143; Interferon; 1  
 DR PRINTS; PR00266; INTERFERONAB.  
 DR ProDom; PD000550; Interferon\_abd; 1.  
 DR SMART; SMO0076; IFabd; 1.  
 DR PROSITE; PS00252; INTERFERON\_A\_B\_D; 1.  
 KW Antiviral; Cytokine.  
 SQ SEQUENCE 195 AA; 22354 MW; D364AC9A972D8FC4 CRC64;  
 Query Match 88.4%; Score 802; DB 2; Length 195;  
 Best Local Similarity 90.1%; Pred. No. 4.6e-66;  
 Matches 155; Conservative 7; Mismatches 10; Indels 0; Gaps 0;  
 QY 1 CYLSERLMLDARENILKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKDAQFPVLVEM 60  
 DB 24 CYLSRLMLDARENILRLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKQAFVLYEM 83  
 QY 61 LQQSFNLFYTEHSSAAWDTTLLLEQLCTGLQQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
 DB 84 LQQSFNLFHTERSAAWNTTLLLEQLHTGLQQLDHLDTCRGLVMGEKDSLGKMDPIVTV 143  
 QY 121 KKYFGIYDYLOEKGYSDCAWEIVRVMRALTTSVTLQKRLTKMGDLNSP 172  
 DB 144 KKYFGIYDYLOEKGYSDCAWEIVRVMRALTTSVTLQKRLTKMGDLNSP 195

Search completed: October 28, 2005, 14:59:57  
 Job time : 115.5 secs

GenCore version 5.1.6  
Copyright (c) 1993 - 2005 Compugen Ltd.

OM protein - protein search, using sw model

Run on: October 28, 2005, 14:51:03 ; Search time 24.5 seconds  
(without alignments)  
524.067 Million cell updates/sec

Title: US-10-719-472-3

Perfect score: 907

Sequence: 1 CYLSERMLDARENKLLDR.....TVSTTIQKRLTKMGDLNSP 172

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Issued Patents AA:\*

- 1: /cgn2\_6/prodata/1/iaa/5A\_COMB.pep.\*
- 2: /cgn2\_6/prodata/1/iaa/5B\_COMB.pep.\*
- 3: /cgn2\_6/prodata/1/iaa/6A\_COMB.pep.\*
- 4: /cgn2\_6/prodata/1/iaa/6B\_COMB.pep.\*
- 5: /cgn2\_6/prodata/1/iaa/PCUS\_COMB.pep.\*
- 6: /cgn2\_6/prodata/1/iaa/backfiles1.pep.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	899	99.1	172	1	US-08-438-753B-2 Sequence 2, Appli
2	899	99.1	172	1	US-08-443-883A-2 Sequence 2, Appli
3	899	99.1	172	2	US-08-631-328-2 Sequence 2, Appli
4	899	99.1	172	2	US-08-455-524B-2 Sequence 2, Appli
5	899	99.1	172	2	US-08-455-021B-2 Sequence 2, Appli
6	899	99.1	172	3	US-09-045-467-2 Sequence 2, Appli
7	899	99.1	172	3	US-08-954-395A-18 Sequence 18, Appli
8	899	99.1	172	3	US-08-616-904-2 Sequence 2, Appli
9	894	98.6	172	4	US-09-599-413-18 Sequence 2, Appli
10	892	98.3	172	4	US-09-599-413-2 Sequence 2, Appli
11	890	98.1	172	4	US-09-599-413-7 Sequence 7, Appli
12	889	98.0	172	4	US-09-599-413-19 Sequence 19, Appli
13	888	97.9	172	4	US-09-599-413-9 Sequence 9, Appli
14	888	97.9	172	4	US-09-599-413-20 Sequence 20, Appli
15	887	97.8	172	4	US-09-599-413-4 Sequence 4, Appli
16	886	97.7	172	4	US-09-599-413-5 Sequence 5, Appli
17	886	97.7	172	4	US-09-599-413-10 Sequence 10, Appli
18	884	97.5	172	4	US-09-599-413-6 Sequence 6, Appli
19	882	97.2	172	4	US-09-599-413-8 Sequence 8, Appli
20	861.5	95.0	196	4	US-09-487-792-12 Sequence 12, Appli
21	861.5	95.0	196	4	US-09-308-594-12 Sequence 12, Appli
22	727	80.2	195	4	US-09-487-792-11 Sequence 11, Appli
23	727	80.2	195	4	US-09-594-11 Sequence 11, Appli
24	613	67.6	172	1	US-08-438-753B-4 Sequence 4, Appli
25	613	67.6	172	1	US-08-438-753B-4 Sequence 4, Appli
26	613	67.6	172	1	US-08-443-883A-4 Sequence 4, Appli
27	613	67.6	172	1	US-08-443-883A-4 Sequence 4, Appli

28	613	67.6	172	2	US-08-631-328-4 Sequence 4, Appli
29	613	67.6	172	2	US-08-631-328-44 Sequence 44, Appli
30	613	67.6	172	2	US-08-455-524B-4 Sequence 4, Appli
31	613	67.6	172	2	US-08-455-524B-44 Sequence 44, Appli
32	613	67.6	172	2	US-08-455-021B-4 Sequence 4, Appli
33	613	67.6	172	2	US-08-455-021B-44 Sequence 44, Appli
34	613	67.6	172	3	US-09-045-467-4 Sequence 4, Appli
35	613	67.6	172	3	US-09-045-467-44 Sequence 44, Appli
36	613	67.6	172	3	US-08-616-904-4 Sequence 4, Appli
37	613	67.6	195	1	US-08-438-753B-12 Sequence 12, Appli
38	613	67.6	195	1	US-08-443-883A-12 Sequence 12, Appli
39	613	67.6	195	2	US-08-631-328-12 Sequence 12, Appli
40	613	67.6	195	2	US-08-455-524B-12 Sequence 12, Appli
41	613	67.6	195	2	US-08-455-021B-12 Sequence 12, Appli
42	613	67.6	195	3	US-09-045-467-12 Sequence 12, Appli
43	605	66.7	171	1	US-08-438-753B-30 Sequence 30, Appli
44	605	66.7	171	1	US-08-443-883A-30 Sequence 30, Appli
45	605	66.7	171	2	US-08-631-328-30 Sequence 30, Appli

ALIGNMENTS

RESULT 1  
US-08-438-753B-2  
; Sequence 2, Application US/08438753B  
; Patent No. 5705363  
; GENERAL INFORMATION:  
; APPLICANT: Imakawa, Kazuhito  
; TITLE OF INVENTION: Interferon Tau Compositions and  
; TITLE OF INVENTION: Methods of Use  
; NUMBER OF SEQUENCES: 44  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Dehlinger & Associates  
; STREET: 350 Cambridge Ave., Suite 250  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: PatentIn Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/438,753B  
; FILING DATE: 10-MAY-1995  
; CLASSIFICATION: 435  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 08/139,891  
; FILING DATE: 19-OCT-1993  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/847,741  
; FILING DATE: 09-MAR-1992  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/318,050  
; FILING DATE: 02-MAR-1989  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/969,890  
; FILING DATE: 30-OCT-1992  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Sholtz, Charles K.  
; REGISTRATION NUMBER: 38,615  
; REFERENCE/DOCKET NUMBER: 5600-0001.30  
; TELEPHONE: 415-324-0880  
; TELEFAX: 415-324-0960  
; INFORMATION FOR SEQ ID NO: 2:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 172 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein

ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: amino acid sequence of a mature  
INDIVIDUAL ISOLATE: OviFNTau protein  
US-08-438-753B-2

Query Match 99.1%; Score 899; DB 1; Length 172;  
Best Local Similarity 98.8%; Pred. No. 1.6e-98;  
Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 CYLSERMLDARENKLLDRNRLSPHSCLQDRKDFGLPOEMVEGDQLQKQDAFPVLVEM 60  
DB 1 CYLSERMLDARENKLLDRNRLSPHSCLQDRKDFGLPOEMVEGDQLQKQDAFPVLVEM 60  
QY 61 LQOSFNLFTYHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120  
DB 61 LQOSFNLFTYHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120  
QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTVTSTTLQKRLTKMGGLNSP 172  
DB 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTVTSTTLQKRLTKMGGLNSP 172

RESULT 2

US-08-443-883A-2  
Sequence 2, Application US/08443883A  
Patent No. 5738845

GENERAL INFORMATION:  
APPLICANT: Bazer, Fuller W.  
APPLICANT: Johnson, Howard M.  
APPLICANT: Pontzer, Carol H.  
APPLICANT: Ott, Troy L.  
APPLICANT: Van Heeke, Gino  
APPLICANT: Imakawa, Kazuhito  
TITLE OF INVENTION: Interferon Tau Compositions and  
TITLE OF INVENTION: Methods of Use  
NUMBER OF SEQUENCES: 44  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Dehlinger & Associates  
STREET: 350 Cambridge Ave., Suite 250  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306

COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/443,883A  
FILING DATE:

CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/139,891  
FILING DATE: 19-OCT-1993  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 07/847,741  
FILING DATE: 09-MAR-1992  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 07/318,050  
FILING DATE: 02-MAR-1989  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 07/969,890  
FILING DATE: 30-OCT-1992  
ATTORNEY/AGENT INFORMATION:  
NAME: Fabian, Gary R.  
REGISTRATION NUMBER: 33,875  
REFERENCE/DOCKET NUMBER: 5600-0001.30  
TELEPHONE: 415-324-0880  
TELEFAX: 415-324-0960  
INFORMATION FOR SEQ ID NO: 2:  
SEQUENCE CHARACTERISTICS:

LENGTH: 172 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: amino acid sequence of a mature  
INDIVIDUAL ISOLATE: OviFNTau protein  
US-08-443-883A-2

Query Match 99.1%; Score 899; DB 1; Length 172;  
Best Local Similarity 98.8%; Pred. No. 1.6e-98;  
Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 CYLSERMLDARENKLLDRNRLSPHSCLQDRKDFGLPOEMVEGDQLQKQDAFPVLVEM 60  
DB 1 CYLSERMLDARENKLLDRNRLSPHSCLQDRKDFGLPOEMVEGDQLQKQDAFPVLVEM 60  
QY 61 LQOSFNLFTYHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120  
DB 61 LQOSFNLFTYHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120  
QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTVTSTTLQKRLTKMGGLNSP 172  
DB 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTVTSTTLQKRLTKMGGLNSP 172

RESULT 3

US-08-631-328-2  
Sequence 2, Application US/08631328  
Patent No. 593286

GENERAL INFORMATION:  
APPLICANT: Johnson, Howard M.  
APPLICANT: Pontzer, Carol H.  
APPLICANT: Subramanian, Prem S.  
TITLE OF INVENTION: Hybrid Interferon Compositions and  
TITLE OF INVENTION: Methods of Use  
NUMBER OF SEQUENCES: 55  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Dehlinger & Associates  
STREET: 350 Cambridge Ave., Suite 250  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94306

COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/631,328  
FILING DATE: 12-APR-1996

CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/438,753  
FILING DATE: 10-MAY-1995  
ATTORNEY/AGENT INFORMATION:  
NAME: Sholtz, Charles K.  
REGISTRATION NUMBER: 38,615  
REFERENCE/DOCKET NUMBER: 5600-0001.34  
TELEPHONE: 415-324-0880  
TELEFAX: 415-324-0960  
INFORMATION FOR SEQ ID NO: 2:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 172 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: amino acid sequence of a mature  
INDIVIDUAL ISOLATE: OviFNTau protein  
US-08-631-328-2

```
Query Match          99.1%; Score 899; DB 2; Length 172;
Best Local Similarity 98.8%; Pred. No. 1.6e-98;
Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 CYLSRLMLDARENKLLDRNRLSPHSCLODRKDFGLPQEMVEGDQLQKQDAFPVLYEM 60
Db 1 CYLSRLMLDARENKLLDRNRLSPHSCLODRKDFGLPQEMVEGDQLQKQDAFPVLYEM 60
QY 61 LQOSNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
Db 61 LQOSNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
QY 121 KKYFGIYDYLQEKGYSCAWEIVRVMRALTVTSTTLQKRLTKMGDLNSP 172
Db 121 KKYFGIYDYLQEKGYSCAWEIVRVMRALTVTSTTLQKRLTKMGDLNSP 172

RESULT 4
US-08-455-524B-2
; Sequence 2, Application US/08455524B
; Patent No. 5942223
; GENERAL INFORMATION:
; APPLICANT: Bazer, Fuller W.
; APPLICANT: Johnson, Howard M.
; APPLICANT: Pontzer, Carol H.
; APPLICANT: Ott, Troy L.
; APPLICANT: Van Heeke, Gino
; TITLE OF INVENTION: Interferon Tau Compositions and
; TITLE OF INVENTION: Methods of Use
; NUMBER OF SEQUENCES: 44
; CORRESPONDENCE ADDRESS:
; ADDRESSES: Dehlinger & Associates
; STREET: 350 Cambridge Ave., Suite 250
; CITY: Palo Alto
; STATE: CA
; COUNTRY: USA
; ZIP: 94306
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.25
; CURRENT APPLICATION NUMBER: US/08/455,524B
; FILING DATE: 31-MAY-1995
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/438,753
; FILING DATE: 10-MAY-1995
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/139,891
; FILING DATE: 19-OCT-1993
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/847,741
; FILING DATE: 09-MAR-1992
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/318,050
; FILING DATE: 02-MAR-1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/969,890
; FILING DATE: 30-OCT-1992
; ATTORNEY/AGENT INFORMATION:
; NAME: Sholtz, Charles K.
; REGISTRATION NUMBER: 38,615
; REFERENCE/DOCKET NUMBER: 5600-0001.32
; TELEPHONE: 415-324-0880
; TELEFAX: 415-324-0960
; INFORMATION FOR SEQ ID NO: 2:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 172 amino acids
; TYPE: amino acid

;
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; ORIGINAL SOURCE:
; INDIVIDUAL ISOLATE: amino acid sequence of a mature
; INDIVIDUAL ISOLATE: OviEntau protein
; US-08-455-524B-2
Query Match          99.1%; Score 899; DB 2; Length 172;
Best Local Similarity 98.8%; Pred. No. 1.6e-98;
Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 CYLSRLMLDARENKLLDRNRLSPHSCLODRKDFGLPQEMVEGDQLQKQDAFPVLYEM 60
Db 1 CYLSRLMLDARENKLLDRNRLSPHSCLODRKDFGLPQEMVEGDQLQKQDAFPVLYEM 60
QY 61 LQOSNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
Db 61 LQOSNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
QY 121 KKYFGIYDYLQEKGYSCAWEIVRVMRALTVTSTTLQKRLTKMGDLNSP 172
Db 121 KKYFGIYDYLQEKGYSCAWEIVRVMRALTVTSTTLQKRLTKMGDLNSP 172

RESULT 5
US-08-455-021B-2
; Sequence 2, Application US/08455021B
; GENERAL INFORMATION:
; APPLICANT: Bazer, Fuller W.
; APPLICANT: Johnson, Howard M.
; APPLICANT: Pontzer, Carol H.
; APPLICANT: Ott, Troy L.
; APPLICANT: Van Heeke, Gino
; TITLE OF INVENTION: Interferon Tau Compositions and
; TITLE OF INVENTION: Methods of Use
; NUMBER OF SEQUENCES: 44
; CORRESPONDENCE ADDRESS:
; ADDRESSES: Dehlinger & Associates
; STREET: 350 Cambridge Ave., Suite 250
; CITY: Palo Alto
; STATE: CA
; COUNTRY: USA
; ZIP: 94306
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/455,021B
; FILING DATE: 31-MAY-1995
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/139,891
; FILING DATE: 19-OCT-1993
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/847,741
; FILING DATE: 09-MAR-1992
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/318,050
; FILING DATE: 02-MAR-1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/969,890
; FILING DATE: 30-OCT-1992
; ATTORNEY/AGENT INFORMATION:
; NAME: Sholtz, Charles K.
; REGISTRATION NUMBER: 38,615
; REFERENCE/DOCKET NUMBER: 5600-0001.31
; TELEPHONE: 415-324-0880
; TELEFAX: 415-324-0960
; INFORMATION FOR SEQ ID NO: 2:
; INFORMATION FOR SEQ ID NO: 2:
```

```
/ ; SEQUENCE CHARACTERISTICS:
/ ; LENGTH: 172 amino acids
/ ; TYPE: amino acid
/ ; TOPOLOGY: linear
/ ; MOLECULE TYPE: protein
/ ; ORIGINAL SOURCE:
/ ; INDIVIDUAL ISOLATE: amino acid sequence of a mature
/ ; INDIVIDUAL ISOLATE: Ovintau protein
/ ;
US-08-455-021B-2
Query Match 99.1%; Score 899; DB 2; Length 172;
Best Local Similarity 98.8%; Pred. No. 1.6e-98;
Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 CYLSERMLDARENKLLDRNMRLSPHSCLOQRKDFGLPQEMVEGDQLOKQAFPLVYEM 60
DB 1 CYLSRKMLDARENKLLDRNMRLSPHSCLOQRKDFGLPQEMVEGDQLOKQAFPLVYEM 60
QY 61 LQOSFNLFTYHSSAAWDTTLLEQLCTGLQOQLDHLDTCRGVMGEEDSELGNMDPIVTV 120
DB 61 LQOSFNLFTYHSSAAWDTTLLEQLCTGLQOQLDHLDTCRGVMGEEDSELGNMDPIVTV 120
QY 121 KKYFGIYDYLOEKGYSDCAWEIVRVMRALTIVSTTLQKRLTKMGDLNSP 172
DB 121 KKYFGIYDYLOEKGYSDCAWEIVRVMRALTIVSTTLQKRLTKMGDLNSP 172

RESULT 6
US-09-045-467-2
/ ; Sequence 2, Application US/09045467
/ ; GENERAL INFORMATION:
/ ; APPLICANT: Johnson, Howard M.
/ ; Pontzer, Carol H.
/ ; TITLE OF INVENTION: Interferon Tau Compositions and
/ ; Methods of Use
/ ; NUMBER OF SEQUENCES: 44
/ ; CORRESPONDENCE ADDRESS:
/ ; ADDRESSEE: Dehlinger & Associates
/ ; STREET: 350 Cambridge Ave., Suite 250
/ ; CITY: Palo Alto
/ ; STATE: CA
/ ; COUNTRY: USA
/ ; ZIP: 94306
/ ; COMPUTER READABLE FORM:
/ ; MEDIUM TYPE: Floppy disk
/ ; COMPUTER: IBM PC compatible
/ ; OPERATING SYSTEM: PC-DOS/MS-DOS
/ ; SOFTWARE: Patent In Release #1.0, Version #1.25
/ ; CURRENT APPLICATION DATA:
/ ; APPLICATION NUMBER: US/09/045,467
/ ; FILING DATE: 20-Mar-1998
/ ; CLASSIFICATION: <Unknown>
/ ; PRIOR APPLICATION DATA:
/ ; APPLICATION NUMBER: US 08/455,021
/ ; FILING DATE: 31-MAY-1995
/ ; APPLICATION NUMBER: US 08/438,753
/ ; FILING DATE: 10-MAY-1995
/ ; APPLICATION NUMBER: US 08/139,891
/ ; FILING DATE: 19-OCT-1993
/ ; APPLICATION NUMBER: US 07/847,741
/ ; FILING DATE: 09-MAR-1992
/ ; APPLICATION NUMBER: US 07/318,050
/ ; FILING DATE: 02-MAR-1989
/ ; APPLICATION NUMBER: US 07/969,890
/ ; FILING DATE: 30-OCT-1992
/ ; ATTORNEY/AGENT INFORMATION:
/ ; NAME: Dehlinger, Peter J.
/ ; REGISTRATION NUMBER: 28,006
/ ; REFERENCE/DOCKET NUMBER: 5600-0001.36
/ ; TELECOMMUNICATION INFORMATION:
/ ; TELEPHONE: 650-324-0880
/ ; TELEFAX: 650-324-0960
/ ; INFORMATION FOR SEQ ID NO: 2:
/ ; SEQUENCE CHARACTERISTICS:
/ ; LENGTH: 172 amino acids
/ ; TYPE: amino acid
/ ; TOPOLOGY: linear
/ ; MOLECULE TYPE: protein
/ ; ORIGINAL SOURCE:
/ ; INDIVIDUAL ISOLATE: amino acid sequence of a mature
/ ; INDIVIDUAL ISOLATE: Ovintau protein
/ ;
US-09-045-467-2
Query Match 99.1%; Score 899; DB 3; Length 172;
Best Local Similarity 98.8%; Pred. No. 1.6e-98;
Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 CYLSERMLDARENKLLDRNMRLSPHSCLOQRKDFGLPQEMVEGDQLOKQAFPLVYEM 60
DB 1 CYLSRKMLDARENKLLDRNMRLSPHSCLOQRKDFGLPQEMVEGDQLOKQAFPLVYEM 60
QY 61 LQOSFNLFTYHSSAAWDTTLLEQLCTGLQOQLDHLDTCRGVMGEEDSELGNMDPIVTV 120
DB 61 LQOSFNLFTYHSSAAWDTTLLEQLCTGLQOQLDHLDTCRGVMGEEDSELGNMDPIVTV 120
QY 121 KKYFGIYDYLOEKGYSDCAWEIVRVMRALTIVSTTLQKRLTKMGDLNSP 172
DB 121 KKYFGIYDYLOEKGYSDCAWEIVRVMRALTIVSTTLQKRLTKMGDLNSP 172

RESULT 7
US-08-954-395A-18
/ ; Sequence 18, Application US/08954395A
/ ; Patent No. 6204022
/ ; GENERAL INFORMATION:
/ ; APPLICANT: Johnson, Howard M.
/ ; APPLICANT: Subramaniam, Prem S.
/ ; APPLICANT: Pontzer, Carol H.
/ ; APPLICANT: Villarete, Lorelie H.
/ ; APPLICANT: Campos, Jackeline
/ ; APPLICANT: Chung, Albert D.
/ ; APPLICANT: Li, Wayne W.
/ ; APPLICANT: Liu, Philip T.
/ ; TITLE OF INVENTION: LOW-TOXICITY HUMAN INTERFERON-ALPHA
/ ; NUMBER OF SEQUENCES: 35
/ ; CORRESPONDENCE ADDRESS:
/ ; ADDRESSEE: Dehlinger & Associates LLP
/ ; STREET: 350 Cambridge Ave., Suite 250
/ ; CITY: Palo Alto
/ ; STATE: CA
/ ; COUNTRY: USA
/ ; ZIP: 94306
/ ; COMPUTER READABLE FORM:
/ ; MEDIUM TYPE: Diskette
/ ; COMPUTER: IBM Compatible
/ ; OPERATING SYSTEM: DOS
/ ; SOFTWARE: FastSeq for Windows Version 2.0
/ ; CURRENT APPLICATION DATA:
/ ; APPLICATION NUMBER: US/08/954,395A
/ ; FILING DATE: Filed Herewith
/ ; CLASSIFICATION: 435
/ ; PRIOR APPLICATION DATA:
/ ; APPLICATION NUMBER: 08/631,328
/ ; FILING DATE: 12-APR-1996
/ ; ATTORNEY/AGENT INFORMATION:
/ ; NAME: Dehlinger, Peter J
/ ; REGISTRATION NUMBER: 27008
/ ; REFERENCE/DOCKET NUMBER: 5600-0001.35
/ ; TELECOMMUNICATION INFORMATION:
/ ; TELEPHONE: 650-324-0880
/ ; TELEFAX: 650-324-0960
/ ; INFORMATION FOR SEQ ID NO: 18:
/ ; SEQUENCE CHARACTERISTICS:
/ ; LENGTH: 172 amino acids
/ ; TYPE: amino acid
/ ; TOPOLOGY: linear
/ ; MOLECULE TYPE: protein
/ ; ORIGINAL SOURCE:
/ ; INDIVIDUAL ISOLATE: amino acid sequence of a mature
/ ; INDIVIDUAL ISOLATE: Ovintau protein
/ ;
US-09-045-467-2
Query Match 99.1%; Score 899; DB 3; Length 172;
Best Local Similarity 98.8%; Pred. No. 1.6e-98;
Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 CYLSERMLDARENKLLDRNMRLSPHSCLOQRKDFGLPQEMVEGDQLOKQAFPLVYEM 60
DB 1 CYLSRKMLDARENKLLDRNMRLSPHSCLOQRKDFGLPQEMVEGDQLOKQAFPLVYEM 60
QY 61 LQOSFNLFTYHSSAAWDTTLLEQLCTGLQOQLDHLDTCRGVMGEEDSELGNMDPIVTV 120
DB 61 LQOSFNLFTYHSSAAWDTTLLEQLCTGLQOQLDHLDTCRGVMGEEDSELGNMDPIVTV 120
QY 121 KKYFGIYDYLOEKGYSDCAWEIVRVMRALTIVSTTLQKRLTKMGDLNSP 172
DB 121 KKYFGIYDYLOEKGYSDCAWEIVRVMRALTIVSTTLQKRLTKMGDLNSP 172
```



/ LENGTH: 172 amino acids  
/ TYPE: amino acid  
/ STRANDEDNESS: single  
/ TOPOLOGY: linear  
/ MOLECULE TYPE: protein  
/ IMMEDIATE SOURCE:  
/ LIBRARY: GenBank Accessn. Y00287, PID g1358  
/ CLONE: Ovine IFN-tau, mature protein  
US-08-954-395A-18

Query Match  
Best Local Similarity 99.1%; Score 899; DB 3; Length 172;  
Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 CYLSERMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDLQKQDAFPVLYEM 60  
Db 1 CYLSRKMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDLQKQDAFPVLYEM 60

QY 61 LQOSFNLFTYHSSAAWDTTLLLEQLCTGLQQLDHLDTCRGQVMGEEDSELGNMDFIVT 120  
Db 61 LQOSFNLFTYHSSAAWDTTLLLEQLCTGLQQLDHLDTCRGQVMGEEDSELGNMDFIVT 120

QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTVTSTTLOKRLTKMGDLNSP 172  
Db 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTVTSTTLOKRLTKMGDLNSP 172

RESULT 8  
US-08-616-904-2  
; Sequence 2, Application US/08616904  
; Patent No. 6372206  
; GENERAL INFORMATION:  
; APPLICANT: Soos, Jeanne M.  
; APPLICANT: Schiffenbauer, Joel  
; APPLICANT: Johnson, Howard M.  
; TITLE OF INVENTION: Orally-Administered Interferon-Tau  
; NUMBER OF SEQUENCES: 6  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Dehlinger & Associates  
; STREET: 350 Cambridge Ave., Suite 250  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: Patent In Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/08/616,904  
; FILING DATE: 15-MAR-1996  
; CLASSIFICATION: 514  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Sholtz, Charles K.  
; REGISTRATION NUMBER: 38,615  
; REFERENCE/DOCKET NUMBER: 5600-0003  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 415-324-0880  
; TELEFAX: 415-324-0960  
; INFORMATION FOR SEQ ID NO: 2:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 172 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: amino acid sequence of a mature  
; INDIVIDUAL ISOLATE: OviFntau protein  
US-08-616-904-2

Query Match 99.1%; Score 899; DB 3; Length 172;

Best Local Similarity 98.8%; Pred. No. 1.6e-98;  
Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 CYLSERMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDLQKQDAFPVLYEM 60  
Db 1 CYLSRKMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDLQKQDAFPVLYEM 60

QY 61 LQOSFNLFTYHSSAAWDTTLLLEQLCTGLQQLDHLDTCRGQVMGEEDSELGNMDFIVT 120  
Db 61 LQOSFNLFTYHSSAAWDTTLLLEQLCTGLQQLDHLDTCRGQVMGEEDSELGNMDFIVT 120

QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTVTSTTLOKRLTKMGDLNSP 172  
Db 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTVTSTTLOKRLTKMGDLNSP 172

RESULT 9  
US-09-599-413-18  
; Sequence 18, Application US/09599413  
; Patent No. 6833256  
; GENERAL INFORMATION:  
; APPLICANT: Pontzer, Carol H.  
; TITLE OF INVENTION: Interferon Tau Mutants and Methods for Making Them  
; FILE REFERENCE: interferon tau  
; CURRENT APPLICATION NUMBER: US/09/599,413  
; PRIOR FILING DATE: 2000-06-22  
; PRIOR APPLICATION NUMBER: 60/140,411  
; PRIOR FILING DATE: 1999-06-22  
; NUMBER OF SEQ ID NOS: 20  
; SOFTWARE: Patent In Ver. 2.1  
; SEQ ID NO 18  
; LENGTH: 172  
; TYPE: PRT  
; ORGANISM: ovine  
US-09-599-413-18

Query Match 98.6%; Score 894; DB 4; Length 172;  
Best Local Similarity 98.3%; Pred. No. 6.2e-98;  
Matches 169; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

QY 1 CYLSERMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDLQKQDAFPVLYEM 60  
Db 1 CYLSQKMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDLQKQDAFPVLYEM 60

QY 61 LQOSFNLFTYHSSAAWDTTLLLEQLCTGLQQLDHLDTCRGQVMGEEDSELGNMDFIVT 120  
Db 61 LQOSFNLFTYHSSAAWDTTLLLEQLCTGLQQLDHLDTCRGQVMGEEDSELGNMDFIVT 120

QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTVTSTTLOKRLTKMGDLNSP 172  
Db 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTVTSTTLOKRLTKMGDLNSP 172

RESULT 10  
US-09-599-413-2  
; Sequence 2, Application US/09599413  
; Patent No. 6833256  
; GENERAL INFORMATION:  
; APPLICANT: Pontzer, Carol H.  
; TITLE OF INVENTION: Interferon Tau Mutants and Methods for Making Them  
; FILE REFERENCE: interferon tau  
; CURRENT APPLICATION NUMBER: US/09/599,413  
; CURRENT FILING DATE: 2000-06-22  
; PRIOR APPLICATION NUMBER: 60/140,411  
; PRIOR FILING DATE: 1999-06-22  
; NUMBER OF SEQ ID NOS: 20  
; SOFTWARE: Patent In Ver. 2.1  
; SEQ ID NO 2  
; LENGTH: 172  
; TYPE: PRT  
; ORGANISM: ovine  
US-09-599-413-2

	Query Match	98.3%	Score 992;	DB 4;	Length 172;
	Best Local Similarity	98.3%;	Pred. No. 1.1e-97;		
	Matches 169;	Conservative 1;	Mismatches 2;	Indels 0;	Gaps 0;
Qy	1	CYLSERLMLDARENLKLLDRMNRUSPHSCLQDRKDFGLPQEMVSGDQLQKQDAPFVLYEM	60		
Db	1	CYLSRKMLDARENLKLLDRMNRUSPHSCLQDRKDFGLPQEMVSGDQLQKQDAPFVLYEM	60		
Qy	61	LQGSFNLFYTEHSSAAADTTLLLEQCTGLQQLDHLDTCRQVNGEEDSELGNMDPIVTV	120		
Db	61	LQGSFNLFYTEHSSAAADTTLLLEQCTGLQQLDHLDTCRQVNGEEDSELGNMDPIVTV	120		
Qy	121	KYTFQGIYDYLQEKGYSDCAWEIVRVENMRALTVSTTLQKELTKMGDLNSP	172		
Db	121	KYTFQGIYDYLQEKGYSDCAWEIVRVENMRALTVSTTLQKELTKMGDLNSP	172		

```

RESULT 11
US-09-599-413-7
; Sequence 7, Application US/09599413
; Patent No. 6833256
; GENERAL INFORMATION:
; APPLICANT: Pontzer, Carol H
; TITLE OF INVENTION: Interferon Tau Mutants and Methods for Making Them
; FILE REFERENCE: Interferon tau
; CURRENT APPLICATION NUMBER: US/09/599,413
; CURRENT FILING DATE: 2000-06-22
; PRIORITY APPLICATION NUMBER: 60/140,411
; PRIOR FILING DATE: 1999-06-22
; NUMBER OF SEQ ID NOS: 20
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 7
; LENGTH: 172
; TYPE: PRT
; ORGANISM: ovine
US-09-599-413-7

```

	Query Match	98.1%	Score 890;	DB 4;	Length 172;
	Best Local Similarity	97.7%;	Pred. No. 1.8e-97;		
	Matches 168;	Conservative 2;	Mismatches 2;	Indels 0;	Gaps 0;
Qy	1	CYLSERLMLDARENLKLLDRMNRISPHSCLQDRKDFGLPQEMVSGDLOKQDQAPVLVYEM	60		
Db	1	CYLSRKUMLDARENLKLLDRMNRISPHSCLQDRKDFGLPQEMVSGDLOKQDQAPVLVYEM	60		
Qy	61	LQGSFNLFYETHSSAANDTTLLLEQCTGLQQLDHLDTCRGVNMGESDSELGNMDPIVTV	120		
Db	61	LQGSFNLFYETHSSAANDTTLLLEQCTGLQQLDHLDTCRGVNMGESDSELGNMDPIVTV	120		
Qy	121	KYTFQGIYDLOEKGYSDCAWEIVRVEMMRALTVTSTTLQKRLTKMGDLNSP	172		
Db	121	KYTFQGIYDLOEKGYSDCAWEIVRVEMMRALTVTSTTLQKRLTKMGDLNSP	172		

```

RESULT 12
US-09-599-413-19
; Sequence 19, Application US/09599413
; Patent No. 6833256
; GENERAL INFORMATION:
; APPLICANT: Pontzer, Carol H
; TITLE OF INVENTION: Interferon Tau Mutants and Methods for Making Them
; FILE REFERENCE: interferon tau
; CURRENT APPLICATION NUMBER: US/09/599,413
; CURRENT FILING DATE: 2000-06-22
; PRIOR APPLICATION NUMBER: 60/140,411
; PRIOR FILING DATE: 1999-06-22
; NUMBER OF SEQ ID NOS: 20
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 19
; LENGTH: 172
; TYPE: PRT
; ORGANISM: ovine
US-09-599-413-19

```

		Query Match	98.0%;	Score 889;	DB 4;	Length 172;
		Best Local Similarity	98.3%;	Pred. No. 2,4e-97;		
		Matches 169; Conservative	0;	Mismatches 3;	Indels 0;	Gaps 0;
Qy	1	CYLSERLMLDARENKLLDRMNRSLPHSCLQDRKDFGLPQEMVEGDLQKDQAAPVLVYEM	60			
Dd	1	CYLSRTLMLDARENKLLDRMNRSLPHSCLQDRKDFGLPQEMVEGDLQKDQAAPVLVYEM	60			
Qy	61	LQOSFNLFYTEHSSAAWDTTLLBQLCTGLQQQLDHLDTCRGQVNGEBDSSELGNMDPIVTV	120			
Dd	61	LQOSFNLFYTEHSSAAWDTTLLBQLCTGLQQQLDHLDTCRGQVNGEBDSSELGNMDPIVTV	120			
Qy	121	KKYFQGIYDYLOSKGYSDCAWEIVRVEMRALTVTSTTLQKRLLTKMGGDLSNP	172			
Dd	121	KKYFQGIYDYLOSKGYSDCAWEIVRVEMRALTVTSTTLQKRLLTKMGGDLSNP	172			

```

RESULT 13
US-09-599-413-9
; Sequence 9, Application US/09599413
; Patent No. 6833256
; GENERAL INFORMATION:
; APPLICANT: Pontzer, Carol H
; TITLE OF INVENTION: Interferon Tau Mutants and Methods for Making Them
; FILE REFERENCE: interferon tau
; CURRENT APPLICATION NUMBER: US/09/599,413
; CURRENT FILING DATE: 2000-06-22
; PRIOR APPLICATION NUMBER: 60/140,411
; PRIOR FILING DATE: 1999-06-22
; NUMBER OF SEQ ID NOS: 20
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 9
; LENGTH: 172
; TYPE: PRT
; ORGANISM: ovine
US-09-599-413-9

```

	Query Match	97.9%	Score 888;	DB 4;	Length 172;
	Best Local Similarity	97.7%;	Pred. No. 3.2e-97;		
	Matches 168;	Conservative 2;	Mismatches 2;	Indels 0;	Gaps 0;
Qy	1	CYLSERLMDARENLKLLDRMNFLS	PHSCLQDRKDFGL	POEMVEGGDLOKQDAPFVLYEM	60
		:	:	:	:
Db	1	CYLSRKLMDARENLKLLDRMNFLS	PHSCLQDRKDFGL	POEMVEGGDLOKQDAPFVLYEM	60
Qy	61	LQOSFNLFTYEHSSAAWDTTLL	EQLCTGLQOQLDHLDT	CRGQWGEEDSELGNMDPIVTV	120
Db	61	LQOSFNLFTYEHSSAAWDTTLL	EQLCTGLQOQLDHLDT	CRGQWGEEDSELGNMDPIVTV	120
Qy	121	KKYFOGIYDYLQBGKGYSDCAWE	IVRVEMMRALT	VTSTTLQKRLTWGGLNSP	172
Db	121	KKYFOGIYDYLQBGKGYSDCAWE	IVRVEMMRALT	VTSTTLQKRLTWGGLNSP	172

```

RESULT 14
US-09-599-413-20
; Sequence 20, Application US/09599413
; Patent No. 6833256
; GENERAL INFORMATION:
; APPLICANT: Pontzer, Carol H
; TITLE OF INVENTION: Interferon Tau Mutants and Methods for Making Them
; FILE REFERENCE: interferon tau
; CURRENT APPLICATION NUMBER: US/09/599,413
; CURRENT FILING DATE: 2000-06-22
; PRIOR APPLICATION NUMBER: 60/140,411
; PRIOR FILING DATE: 1999-06-22
; NUMBER OF SEQ ID NOS: 20
; SOFTWARE: PatentIn ver. 2.1
; SEQ ID NO 20
; LENGTH: 172
; TYPE: PRT
; ORGANISM: ovine
;

```

US-09-599-413-20

```
Query Match          97.9%; Score 888; DB 4; Length 172;
Best Local Similarity 97.7%; Pred. No. 3.2e-97;
Matches 168; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 CYLSERLMLDARENKLLDRMNRSLSPHSCLDQRKDFGLPQEMVEGDLQKQDQAFPLYEM 60
   ||| : ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 1 CYLSRKLMLDARENKLLDQMNRSLSPHSCLDQRKDFGLPQEMVEGDLQKQDQAFPLYEM 60
   ||| : ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||

QY 61 LQOSFNLFYTEHSSAAWDTLLLEQLCTGLQQQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
   ||| : ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 61 LQOSFNLFYTEHSSAAWDTLLLEQLCTGLQQQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
   ||| : ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||

QY 121 KKYFQGIYDYLQEKGYSDCAWEIVRVMRALTIVSTTLQKRLTKMGDDLNSP 172
   ||| : ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 121 KKYFQGIYDYLQEKGYSDCAWEIVRVMRALTIVSTTLQKRLTKMGDDLNSP 172
   ||| : ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
```

RESULT 15

```
US-09-599-413-4
; Sequence 4, Application US/09599413
; Patent No. 6833256
; GENERAL INFORMATION:
; APPLICANT: Pontzer, Carol H
; TITLE OF INVENTION: Interferon Tau Mutants and Methods for Making Them
; FILE REFERENCE: interferon tau
; CURRENT APPLICATION NUMBER: US/09/599,413
; CURRENT FILING DATE: 2000-06-22
; PRIOR APPLICATION NUMBER: 60/140,411
; PRIOR FILING DATE: 1999-06-22
; NUMBER OF SEQ ID NOS: 20
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 4
; LENGTH: 172
; TYPE: PRT
; ORGANISM: ovine
US-09-599-413-4
```

```
Query Match          97.8%; Score 887; DB 4; Length 172;
Best Local Similarity 97.7%; Pred. No. 4.2e-97;
Matches 168; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 1 CYLSERLMLDARENKLLDRMNRSLSPHSCLDQRKDFGLPQEMVEGDLQKQDQAFPLYEM 60
   ||| : ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 1 CYLSRKLMLDARRNKLDRMNRSLSPHSCLDQRKDFGLPQEMVEGDLQKQDQAFPLYEM 60
   ||| : ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||

QY 61 LQOSFNLFYTEHSSAAWDTLLLEQLCTGLQQQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
   ||| : ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 61 LQOSFNLFYTEHSSAAWDTLLLEQLCTGLQQQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
   ||| : ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||

QY 121 KKYFQGIYDYLQEKGYSDCAWEIVRVMRALTIVSTTLQKRLTKMGDDLNSP 172
   ||| : ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
Db 121 KKYFQGIYDYLQEKGYSDCAWEIVRVMRALTIVSTTLQKRLTKMGDDLNSP 172
   ||| : ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
```

Search completed: October 28, 2005, 15:01:48  
Job time : 25.5 secs

THIS PAGE BLANK (USPTO)

GenCore version 5.1.6  
Copyright (c) 1993 - 2005 Compugen Ltd.

OM protein - protein search, using sw model

Run on: October 28, 2005, 14:48:06 ; Search time 121 Seconds  
(without alignments)  
549.775 Million cell updates/sec

Title: US-10-719-472-2

Perfect score: 907

Sequence: 1 CYLSKMLDARENKLLDR.....TVSTTLQKRLTKMGDLNSP 172

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database : A\_Geneseq\_16Dec04:\*

- 1: Geneseqp1980s:\*
- 2: Geneseqp1990s:\*
- 3: Geneseqp2000s:\*
- 4: Geneseqp2001s:\*
- 5: Geneseqp2002s:\*
- 6: Geneseqp2003as:\*
- 7: Geneseqp2003bs:\*
- 8: Geneseqp2004s:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	907	100.0	172	2	AAR54768 Sheep int
2	907	100.0	172	2	AAR99397 Ovine tau
3	907	100.0	172	2	AAR31698 Mature ov
4	907	100.0	172	2	AAR44110 Mature ov
5	907	100.0	172	5	ABO7588 Ovine int
6	907	100.0	172	7	AD117857 Mature ov
7	907	100.0	172	8	ADM79177 Mature ov
8	907	100.0	172	8	AD13613 Sheep int
9	907	100.0	195	2	AAR04540 Ovine tro
10	905	99.8	172	2	AAR09294 Ovine tro
11	905	99.8	172	8	ADM79195 Interfero
12	904	99.7	195	2	AAR24942 Sequence
13	900	99.2	172	4	AAB31457 Amino aci
14	900	99.2	172	5	AAB021461 Ovine int
15	899	99.1	172	5	ABO7589 Recombina
16	899	99.1	172	8	ADM79178 Mature ov
17	899	99.1	172	8	AD13614 Recombina
18	898	99.0	172	4	AAB31462 An ovine
19	897	98.9	195	2	AAR24941 Sequence
20	897	98.9	195	2	AAR24945 Sequence
21	896	98.8	172	4	AAB31468 An ovine
22	896	98.8	172	4	AAB31466 An ovine
23	896	98.8	172	4	AAB31464 An ovine
24	895	98.7	172	4	AAB31459 An ovine
25	894	98.6	172	4	AAB31467 An ovine

26	894	98.6	172	4	AAB31465	Aab31465 An ovine
27	894	98.6	172	4	AAB31460	Aab31460 An ovine
28	894	98.6	195	2	AAR24944	Aar24944 Sequence
29	892	98.3	172	4	AAB31461	Aab31461 An ovine
30	890	98.1	172	4	AAB31463	Aab31463 An ovine
31	883	97.4	195	1	AAP91396	Aap91396 Isoform o
32	874	96.4	195	2	AAR24943	Aar24943 Sequence
33	857.5	94.5	196	4	AAB49784	Aab49784 Ovi TP-1
34	857.5	94.5	196	7	ADF94976	Adf94976 Sheep IFN
35	786	86.7	152	8	ADS16363	Adsl6363 Human int
36	723	79.7	195	4	AB49783	Ab49783 Bovine TP
37	723	79.7	195	5	ABO8641	Abb08641 Bovine in
38	723	79.7	195	7	ADF94975	Adf94975 Bovine IF
39	720	79.4	195	2	AAR04539	Aar04539 cDNA clon
40	691	76.2	173	2	AAW70809	Aaw70809 A tau mod
41	649	71.6	171	7	ADG42697	Adg42697 Human int
42	649	71.6	171	7	ADJ55766	Adj55766 Peptide h
43	649	71.6	171	8	ADM76604	Adm76604 Human NOV
44	647	71.3	173	2	AAW70808	Aaw70808 A tau mod
45	632	69.7	173	2	AAW56435	Aaw56435 Amino aci

ALIGNMENTS

RESULT 1  
AAR54768  
ID AAR54768 standard; protein; 172 AA.  
XX  
AC AAR54768;  
XX  
DT 25-MAR-2003 (revised)  
DT 01-DEC-1994 (first entry)  
XX  
DE Sheep interferon-tau mature protein.  
XX  
KW Sheep; interferon-tau; immunostimulant; antitumor; virucide.  
XX  
OS Ovis aries.  
XX  
PN W09410313-A2.  
XX  
PD 11-MAY-1994.  
XX  
PF 19-OCT-1993; 93WO-US010016.  
XX  
PR 30-OCT-1992; 92US-00969890.  
XX  
PA (UYFL ) UNIV FLORIDA.  
XX (WOME-) WOMEN'S RES INST.  
XX  
Bazer FW, Johnson HM, Pontzer CH, Ott TL, Van Heeke G, Imakawa K;  
WPI: 1994-167468/20.  
DR N-PSDB; AAQ64824.  
XX  
Interferon tau compens - lacking cytotoxic side effects when used as  
antivirals, and anti:cellular proliferation agents.  
XX  
Claim 3; Page 90; 136pp; English.  
XX  
This sheep IFN-tau protein is expressed in yeast, insect cells or E. coli  
using expression vector phage lambda-gt11. The protein is useful for  
inhibitin tumor cell growth, for inhibiting viral replication in cells  
and enhancing fertility in female mammals. (Updated on 25-MAR-2003 to  
correct PN field.)  
XX  
SQ Sequence 172 AA;  
Query Match 100.0%; Score 907; DB 2; Length 172;  
Best Local Similarity 100.0%; Pred. No. 1e-92;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYLSRKLMLDARENKLLDRNRLSPHSCLODRKDFGLPQEMVSGDOLQKQOAFPVLYEM 60  
 Db 1 CYLSRKLMLDARENKLLDRNRLSPHSCLODRKDFGLPQEMVSGDOLQKQOAFPVLYEM 60  
 QY 61 LQOSFNLFFYTEHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120  
 Db 61 LQOSFNLFFYTEHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120  
 QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDGLNSP 172  
 Db 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDGLNSP 172

## RESULT 2

AAR99397  
 ID AAR99397 standard; protein; 172 AA.

XX AC AAR99397;  
 XX 29-DEC-1996 (first entry)  
 XX DE Ovine tau interferon (synthetic).  
 XX Tau interferon; ovine; bovine; autoimmune disease;  
 KW proliferative disorder; viral disease; fertility.  
 XX OS Synthetic.

XX PN WO9628183-A1.  
 XX 19-SEP-1996.  
 XX PF 15-MAR-1996; 96WO-US003472.  
 XX PR 16-MAR-1995; 95US-00406190.  
 XX PA (UYFL ) UNIV FLORIDA.

XX PI Soos JM, Schiffenbauer J, Johnson HM;  
 XX WPI; 1996-464609/46.  
 DR N-PSDB; AAT41504.

XX Tau interferon-contg. medicament - useful to treat auto-immune diseases,  
 PT proliferative disorders, viral diseases or to enhance fertility in a  
 PT female mammal.

XX PS Claim 5; Page 48; 65pp; English.

XX CC Ovine and human tau interferon may be used in medicaments to treat  
 CC autoimmune disorders (e.g. multiple sclerosis or rheumatoid arthritis), a  
 CC proliferative disorder (e.g. cancer) or a viral disease (e.g. hepatitis  
 CC B). It can also be used to enhance fertility in female mammals. The  
 CC medicament is given orally or by injection. Ovine and human tau  
 CC interferon sequences are given in AAT41504 to AAT41506

XX SQ Sequence 172 AA;

Query Match 100.0%; Score 907; DB 2; Length 172;  
 Best Local Similarity 100.0%; Pred. No. 1e-92;  
 Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYLSRKLMLDARENKLLDRNRLSPHSCLODRKDFGLPQEMVSGDOLQKQOAFPVLYEM 60  
 Db 1 CYLSRKLMLDARENKLLDRNRLSPHSCLODRKDFGLPQEMVSGDOLQKQOAFPVLYEM 60  
 QY 61 LQOSFNLFFYTEHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120  
 Db 61 LQOSFNLFFYTEHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120

QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDGLNSP 172  
 Db 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDGLNSP 172

## RESULT 3

AAW31698  
 ID AAW31698 standard; protein; 172 AA.

XX AC AAW31698;  
 XX 14-APR-1998 (first entry)  
 XX DE Mature ovine interferon-tau (OvIFNtau) protein.

XX KW Interferon-tau; ovine; human; auto immune disease; treatment; toxicity;  
 XX IFN tau; multiple sclerosis; diabetes mellitus; asthma; allergy; cancer.

XX OS Ovis aries.

XX PN WO9733607-A1.  
 XX 18-SEP-1997.

XX PF 12-MAR-1997; 97WO-US003794.

XX PR 15-MAR-1996; 96US-00616904.

XX PA (UYFL ) UNIV FLORIDA.

XX PI Soos JM, Schiffenbauer J, Johnson HM;

XX WPI; 1997-470642/43.  
 DR N-PSDB; AAV02288.

XX Oral administration of interferon-tau for treatment of auto-immune  
 PT disease - avoids toxicity of interferon alpha and generates fewer  
 PT specific antibodies than injection.

XX PS Claim 5; Page 31; 48pp; English.

XX CC This is a mature ovine interferon-tau (OVIFNtau) protein. The ovine and  
 CC the human interferon-tau (IFN tau) can be used in the treatment of  
 CC mammalian diseases responsive to IFN tau. The new feature in the  
 CC treatment is that IFN tau is administered orally. The method is used to  
 CC treat immune, particularly auto-immune disease, specifically multiple  
 CC sclerosis (a preferred application, reducing both severity and frequency  
 CC of relapses), type I diabetes mellitus, lupus erythematosus, amyotrophic  
 CC lateral sclerosis, Crohn's disease, rheumatoid arthritis, stomatitis,  
 CC asthma, allergies and psoriasis, particularly in humans or dogs. IFN tau  
 CC is also useful for treating cancer (e.g. hairy cell leukaemia, Kaposi's  
 CC sarcoma and multiple myeloma), cell proliferation and viral diseases  
 CC (hepatitis, human immunodeficiency virus etc., including prevention of  
 CC maternal transmission). It is also used for increasing fertility in  
 CC female mammals (increasing life time of the corpus luteum). Oral  
 CC administration is as effective as injection but is more convenient and  
 CC generates a lower level of anti-IFN tau antibodies. Use of IFN tau avoids  
 CC the toxicity associated with use of IFN alpha

XX SQ Sequence 172 AA;

Query Match 100.0%; Score 907; DB 2; Length 172;  
 Best Local Similarity 100.0%; Pred. No. 1e-92;  
 Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYLSRKLMLDARENKLLDRNRLSPHSCLODRKDFGLPQEMVSGDOLQKQOAFPVLYEM 60  
 Db 1 CYLSRKLMLDARENKLLDRNRLSPHSCLODRKDFGLPQEMVSGDOLQKQOAFPVLYEM 60  
 QY 61 LQOSFNLFFYTEHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120  
 Db 61 LQOSFNLFFYTEHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120

QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDGLNSP 172  
 Db 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDGLNSP 172

QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDLNSP 172  
 |||||  
 Db 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDLNSP 172

RESULT 4  
 ID AAW44110 standard; protein; 172 AA.

AC AAW44110;

DT 16-JUN-1998 (first entry)

DE Mature ovine interferon tau.

XX Hybrid; fusion; interferon-tau; inhibit; tumour; viral growth; IFNt;  
 KW autoimmune disease; immune response.

OS Ovis aries.

PN WO9739127-A1.

PD 23-OCT-1997.

PF 11-APR-1997; 97WO-US006114.

PR 12-APR-1996; 96US-00631328.

XX (UYFL ) UNIV FLORIDA.

XX Johnson HM, Subramaniam PS, Pontzer CH;

XX WPI: 1997-526463/48.

DR N-PSDB; AAV02178.

XX Hybrid nucleic acid encodes fusion of interferon-tau and other interferon  
 PT - used to inhibit tumour and viral growth, and for treating auto-immune  
 PT disease, less toxic than native type I interferon.

PS Disclosure; Page 83; 147pp; English.

XX The present sequence represents mature ovine interferon tau from the  
 CC present invention. The present invention describes a novel chimeric  
 CC nucleic acid which comprises: (i) a 5'-segment encoding the N-terminal  
 CC amino acid (aa) sequence of an interferon tau (IFNt) polypeptide; and  
 CC (ii) a 3'-sequence encoding the C-terminal aa sequence of a non-tau type  
 CC I interferon, with the two segments spliced in a region comprising part  
 CC of the mature interferon between residues 8 and 37. Hybrid interferon  
 CC fusion polypeptides are used to inhibit tumour growth (e.g. of steroid-  
 CC sensitive tumours) and viral replication (e.g. of human immunodeficiency  
 CC virus, hepatitis B or C virus, feline leukaemia virus) and to treat  
 CC autoimmune diseases (e.g. lupus erythematosus, type I diabetes,  
 CC rheumatoid arthritis). Some hybrid interferon fusion polypeptides may  
 CC block the antiviral/antiproliferative actions of IFNt, so can be used to  
 CC prevent immune responses induced by interferons, e.g. in organ  
 CC transplantation. The hybrid interferon fusion polypeptides can also be  
 CC used to raise antibodies, used e.g. for analysis of structure/function  
 CC relationships. The novel chimeric nucleic acid is used to produce  
 CC recombinant hybrid interferon fusion polypeptides. Hybrid interferon  
 CC fusion polypeptides are less toxic than type I interferons, so can be  
 CC administered at higher doses

XX Sequence 172 AA;

Query Match 100.0%; Score 907; DB 2; Length 172;  
 Best Local Similarity 100.0%; Pred. No. 1e-92;  
 Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYLSRKLMDARENKLLDRMNRSPHSCLODRKDFGLPQENVGDLQKQDAFPVLVEM 60

Db 1 CYLSRKLMDARENKLLDRMNRSPHSCLODRKDFGLPQENVGDLQKQDAFPVLVEM 60

QY 61 LQOSFNLFTYHSSAAWDTTLLEQLCTGLQQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120

Db 61 LQOSFNLFTYHSSAAWDTTLLEQLCTGLQQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120

RESULT 5

ABB07588

ID ABB07588 standard; protein; 172 AA.

AC ABB07588;

DT 08-MAY-2002 (first entry)

DE Ovine interferon-tau protein.

XX Hepatitis C virus; HCV infection; ovine; interferon-tau; ovIFN-tau; OAS;  
 KW 2',5'-oligoadenylate synthetase; virucide; hepatotropic; IFN-tau.

OS Ovis aries.

PN WO200206343-A2.

PD 24-JAN-2002.

PF 19-JUL-2001; 2001WO-US022976.

PR 19-JUL-2000; 2000US-0219128P.

PR 17-OCT-2000; 2000JP-00317160.

XX (PERG-) PERGEN CORP.

XX Sokawa Y, Liu C;

XX WPI: 2002-179784/23.

DR N-PSDB; ABA94936.

XX Oral-delivery composition for treating conditions relating to hepatitis  
 PT caused by hepatitis C virus, comprises ovine interferon-tau which  
 PT stimulates bloodstream levels of 2',5'-oligoadenylate synthetase.

PS Example 1; Page 32-33; 33pp; English.

XX The invention provides an oral-delivery composition for use in treating  
 CC hepatitis C virus (HCV) in a HCV-infected patient. The composition  
 CC comprises ovine interferon-tau (ovIFN-tau), in a dosage effective to  
 CC stimulate bloodstream levels of 2',5'-oligoadenylate synthetase (OAS).  
 CC The ovIFN-tau synthesizes OAS which degrades viral mRNA. A method is also  
 CC provided for monitoring the treatment of HCV by oral administration of  
 CC ovIFN-tau, by measuring the blood levels of OAS prior to and after such  
 CC oral administration, and if necessary, adjusting the dose of IFN-tau  
 CC until a measurable increase in blood OAS level, relative to the level  
 CC observed prior to administration. The composition is useful for treating  
 CC hepatitis caused by HCV and the method is useful for monitoring treatment  
 CC of HCV by oral administration of ovIFN-tau. The present sequence  
 CC represents an ovine interferon-tau protein

XX Sequence 172 AA;

Query Match 100.0%; Score 907; DB 5; Length 172;  
 Best Local Similarity 100.0%; Pred. No. 1e-92;  
 Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYLSRKLMDARENKLLDRMNRSPHSCLODRKDFGLPQENVGDLQKQDAFPVLVEM 60

Db 1 CYLSRKLMDARENKLLDRMNRSPHSCLODRKDFGLPQENVGDLQKQDAFPVLVEM 60

QY 61 LQOSFNLFTYHSSAAWDTTLLEQLCTGLQQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120

Db 61 LQOSFNLFTYHSSAAWDTTLLEQLCTGLQQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120

QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDLNSP 172

Db 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDLNSP 172

```

1  C Y L S R K L M L D A R E N I K L L D R M N R L S P H S C L Q D R K D F G L P Q E M V E G D Q L Q K D Q A F P V L Y E M 60
61  L Q O S F N L F Y T E H S S A A W D T T L L E Q L C T G L Q O O L D H L D T C R G Q V M G E E S E L G N M D P I V T V 120
61  L Q O S F N L F Y T E H S S A A W D T T L L E Q L C T G L Q O O L D H L D T C R G Q V M G E E S E L G N M D P I V T V 120
121  K K Y F Q G I Y D Y L Q E K G Y S D C A W E I V R V E M M R A L T V S T T L Q K L T K M G G D L N S P 172
121  K K Y F Q G I Y D Y L Q E K G Y S D C A W E I V R V E M M R A L T V S T T L Q K L T K M G G D L N S P 172

RESULT 7
ADM79177
ID ADM79177 standard; protein; 172 AA.
AC ADM79177;
XX
DT 15-JUL-2004 (first entry)
DE Mature ovine interferon tau protein SEQ ID NO:1.
XX oral administration; interferon; IFN; ovine; mature interferon tau.
XX Ovis aries.
OS
PN WO2004032863-A2.
XX
PD 22-APR-2004.
XX
PF 08-OCT-2003; 2003WO-US031999.
XX
PR 09-OCT-2002; 2002US-0417292P.
XX (PEPG-) PEPGEN CORP.
PA
XX Manning MC, Nayar R;
XX WPI; 2004-340799/31.
XX
DR
XX
PT A composition for oral administration of an interferon (IFN) comprises an
PT IFN and a species that stabilizes the IFN in an active form by
PT interaction between the interferon and the species.
XX
PS Example; SEQ ID NO 1; 52pp; English.
XX
CC The present invention describes a composition for the oral administration
CC of an interferon (IFN) comprising an IFN and a species that stabilises
CC the IFN in an active form by interaction between the IFN and the species.
CC Also described: (1) preparing a protein for oral administration,
CC comprising formulating the protein with a species that stabilises the
CC protein in an active form by binding interaction between the protein and
CC the species, therefore the formulating results in a composition for oral
CC administration; and (2) selecting a dosage form composition for a protein
CC that achieves protein stabilisation for biological activity upon in vivo
CC administration, comprising selecting a protein for formulation, preparing
CC solutions of the selected protein or polypeptide in different buffers at
CC different pH values, and measuring the effect of the buffer on the
CC protein's tertiary structure, where the measuring identifies buffers that
CC result retention of the protein's tertiary structure. The composition and
CC methods are useful for preparing oral dosage forms for administration of
CC proteins and polypeptides. The present sequence represents the mature
CC ovine interferon tau amino acid sequence, which is used in an example
CC from the present invention.
XX
SQ Sequence 172 AA;

Query Match 100.0%; Score 907; DB 8; Length 172;
Best Local Similarity 100.0%; Pred. No. 1e-92;
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 C Y L S R K L M L D A R E N I K L L D R M N R L S P H S C L Q D R K D F G L P Q E M V E G D Q L Q K D Q A F P V L Y E M 60
Db 1 C Y L S R K L M L D A R E N I K L L D R M N R L S P H S C L Q D R K D F G L P Q E M V E G D Q L Q K D Q A F P V L Y E M 60

```



QY 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQQQLDHLDTCRGQVMGEEDESELGNMDFIVTV 120  
 |||||  
 Db 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQQQLDHLDTCRGQVMGEEDESELGNMDFIVTV 120  
 |||||  
 QY 121 KYFQGIYDYLOEKGYSDCAWEIVRVMRALTTSVTTLOKRLTKMGDDLNSP 172  
 |||||  
 Db 121 KYFQGIYDYLOEKGYSDCAWEIVRVMRALTTSVTTLOKRLTKMGDDLNSP 172  
 |||||

RESULT 8  
 ADSI3613  
 ID ADSI3613 standard; protein; 172 AA.  
 XX  
 AC ADSI3613;  
 XX  
 DT 16-DEC-2004 (first entry)  
 XX  
 DE Sheep interferon tau seqid 2.  
 XX  
 KW immunosuppressive; cytostatic; virucide; neuroprotective; antidiabetic;  
 KW muscular; antiinflammatory; antirheumatic; antiarthritic; antiaesthetic;  
 KW dermatological; vaccine; interferon tau; 2',5'-oligoadenylate synthetase;  
 KW OAS; autoimmune condition; cancer; viral infection; multiple sclerosis;  
 KW hepatitis C infection; diabetes mellitus; systemic lupus erythematosus;  
 KW amyotrophic lateral sclerosis; Crohn's disease; rheumatoid arthritis;  
 KW asthma; uveitis; psoriasis; hypersensitivity disorder; sheep.  
 XX  
 OS Ovis aries.  
 XX  
 PN US2004191217-A1.  
 XX  
 PD 30-SEP-2004.  
 XX  
 PF 21-NOV-2003; 2003US-00719472.  
 XX  
 PR 19-JUL-2000; 2000US-0219128P.  
 PR 19-JUL-2001; 2001US-00910406.  
 PR 16-JAN-2002; 2002US-0349658P.  
 PR 16-JAN-2003; 2003US-00346269.  
 PR 31-OCT-2003; 2003US-00698927.  
 XX  
 PA (SOKA/) SOKAWA Y.  
 PA (LIUC/) LIU C.  
 XX  
 PI Sokawa Y, Liu C;  
 XX  
 XX WPI; 2004-698654/68.  
 DR N-PSDB; ADSI3612.  
 XX  
 PT Treating a condition in a subject, e.g. autoimmune condition, cancer or  
 PT viral infection, comprises orally administering interferon-tau to the  
 PT intestinal tract to increase the blood 2'5'-oligoadenylate synthetase  
 PT level.  
 XX  
 PS Claim 2; SEQ ID NO 2; 38pp; English.  
 XX  
 CC The invention describes a method of treating a condition in a human  
 CC subject responsive to interferon tau therapy comprises orally  
 CC administering interferon-tau to the intestinal tract of the subject to  
 CC produce an initial measurable increase in the subject's blood 2',5'-  
 CC oligoadenylate synthetase (OAS) level, relative to the blood OAS level in  
 CC the subject in the absence of interferon-tau administration. The method  
 CC is useful for treating an autoimmune condition, cancer, or a viral  
 CC infection. The method is particularly useful for treating multiple  
 CC sclerosis or hepatitis C infection, diabetes mellitus, systemic lupus  
 CC erythematosus, amyotrophic lateral sclerosis, Crohn's disease, rheumatoid  
 CC arthritis, asthma, uveitis, psoriasis, and hypersensitivity disorders.  
 CC This is the amino acid sequence of ovine interferon-tau.  
 XX  
 SQ Sequence 172 AA;  
 Query Match 100.0%; Score 907; DB 8; Length 172;

Best Local Similarity 100.0%; Pred. No. 1e-92;  
 Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYLSRKLMDARENKLLDRNRLSPHSCLODRKDFGLPQEMVEGDQLQKQAFVLYEM 60  
 |||||  
 Db 1 CYLSRKLMDARENKLLDRNRLSPHSCLODRKDFGLPQEMVEGDQLQKQAFVLYEM 60  
 |||||  
 QY 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQQQLDHLDTCRGQVMGEEDESELGNMDFIVTV 120  
 |||||  
 Db 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQQQLDHLDTCRGQVMGEEDESELGNMDFIVTV 120  
 |||||  
 QY 121 KYFQGIYDYLOEKGYSDCAWEIVRVMRALTTSVTTLOKRLTKMGDDLNSP 172  
 |||||  
 Db 121 KYFQGIYDYLOEKGYSDCAWEIVRVMRALTTSVTTLOKRLTKMGDDLNSP 172  
 |||||

RESULT 9  
 AAR04540  
 ID AAR04540 standard; protein; 195 AA.  
 XX  
 AC AAR04540;  
 XX  
 DT 25-MAR-2003 (revised)  
 DT 17-SEP-1990 (first entry)  
 XX  
 DE Ovine trophoblast protein-1 (otf-1).  
 XX  
 KW Bovine trophoblast protein-1; bTP-1; fertility; ds.  
 XX  
 OS Sus scrofa.  
 XX  
 PN EP367063-A.  
 XX  
 PD 09-MAY-1990.  
 XX  
 PF 23-OCT-1989; 89EP-00119642.  
 PR 26-OCT-1988; 88US-00262870.  
 XX  
 PA (UMOR ) UNIV MISSOURI.  
 XX  
 PI Roberts MR, Imakawa K;  
 XX  
 DR WPI; 1990-141062/19.  
 DR N-PSDB; AAQ04289.  
 XX  
 PT Recombinant bovine trophoblast protein-1 - used for enhancing fertility  
 PT or treating viral diseases in mammal, esp. cattle.  
 XX  
 PS Disclosure; Page ?; 27pp; English.  
 XX  
 CC The bTP-1 produced from the gene may be used to promote fertility or  
 CC treat viral disease in cattle. The gene may also be used to provide  
 CC transgenic animals with enhanced fertility, or in prophylactic and  
 CC therapeutic treatment of other mammals. (Updated on 25-MAR-2003 to  
 CC correct PA field.)  
 XX  
 SQ Sequence 195 AA;  
 Query Match 100.0%; Score 907; DB 2; Length 195;  
 Best Local Similarity 100.0%; Pred. No. 1.2e-92;  
 Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYLSRKLMDARENKLLDRNRLSPHSCLODRKDFGLPQEMVEGDQLQKQAFVLYEM 60  
 |||||  
 Db 24 CYLSRKLMDARENKLLDRNRLSPHSCLODRKDFGLPQEMVEGDQLQKQAFVLYEM 83  
 |||||  
 QY 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQQQLDHLDTCRGQVMGEEDESELGNMDFIVTV 120  
 |||||  
 Db 84 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQQQLDHLDTCRGQVMGEEDESELGNMDFIVTV 143  
 |||||  
 QY 121 KYFQGIYDYLOEKGYSDCAWEIVRVMRALTTSVTTLOKRLTKMGDDLNSP 172  
 |||||

Db 144 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTTSVTLQKRLTKMGDLNSP 195

## RESULT 10

AAR09294  
ID AAR09294 standard; protein; 172 AA.

XX  
XX AAR09294;  
XX  
XX 25-MAR-2003 (revised)  
XX 22-JAN-1991 (first entry)  
XX  
XX Ovine trophoblast protein-1.  
XX  
XX Interferon; tumour; virus; retrovirus; cancer; AIDS.  
XX  
XX Ovis aries.

## Key Location/Qualifiers

FT Peptide 18. .53  
FT Peptide 68. .76  
FT Peptide 88. .114  
FT Peptide 130. .138  
FT Peptide 159. .172

PN W09009806-A.

PD 07-SEP-1990.

XX 02-MAR-1989; 89US-00318050.

XX 02-MAR-1989; 89US-00318050.

XX (UYFL ) UNIV FLORIDA.

XX Bazer FW, Johnson HW;

XX WPI; 1990-290161/38.

XX Non-cytotoxic inhibition of viruses and tumours - using conceptus-derived  
XX ovine trophoblast protein-1.

XX Disclosure; Fig 1; 20pp; English.

XX This conceptus-derived ovine trophoblast protein-1 (oTP-1) is used in a  
XX compen. for inhibiting tumour growth or viral replic- ation. It is an  
XX interferon and exerts its inhibitory effect on viruses , retroviruses and  
XX tumours without harming the cells of the host animal. Its fragments  
XX (indicated in features), or immunologically equivalent variants can also  
XX be used. (Updated on 25-MAR-2003 to correct PA field.)

XX Sequence 172 AA;

Query Match 99.8%; Score 905; DB 2; Length 172;

Best Local Similarity 99.4%; Pred. No. 1.7e-92;

Matches 171; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYLSRKLMDARENKLLDRMNRISPHSCLQDRKDFGLPQEMVEGDQLQKQDQAPFVLYEM 60

Db 1 CYLSRKLMDARENKLLDRMNRISPHSCLQDRKDFGLPQEMVEGDQLQKQDQAPFVLYEM 60

QY 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMEEDSELGNMDPIVTV 120

Db 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMEEDSELGNMDPIVTV 120

QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTTSVTLQKRLTKMGDLNSP 172

Db 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTTSVTLQKRLTKMGDLNSP 172

## RESULT 11

ADM79195  
ID ADM79195 standard; protein; 172 AA.

XX  
XX ADM79195;  
XX  
XX 15-JUL-2004 (first entry)  
XX Interferon tau protein.  
XX  
XX oral administration; interferon; IFN; mature interferon tau.  
XX  
XX Unidentified.

XX W02004032863-A2.

XX 22-APR-2004.

XX 08-OCT-2003; 2003WO-US031999.

XX 09-OCT-2002; 2002US-0417292P.

XX (PEPG-) PEPGEN CORP.

XX Manning MC, Nayar R;

XX WPI; 2004-340799/31.

XX A composition for oral administration of an interferon (IFN) comprises an  
XX IFN and a species that stabilizes the IFN in an active form by  
XX interaction between the interferon and the species.

XX Disclosure; Fig 1A; 52pp; English.

XX The present invention describes a composition for the oral administration  
XX of an interferon (IFN) comprising an IFN and a species that stabilises  
XX the IFN in an active form by interaction between the IFN and the species.  
XX Also described: (1) preparing a protein for oral administration,  
XX comprising formulating the protein with a species that stabilises the  
XX protein in an active form by binding interaction between the protein and  
XX the species; therefore the formulating results in a composition for oral  
XX administration; and (2) selecting a dosage form composition for a protein  
XX that achieves protein stabilisation for biological activity upon in vivo  
XX administration, comprising selecting a protein for formulation, preparing  
XX solutions of the selected protein or polypeptide in different buffers at  
XX different pH values, and measuring the effect of the buffer on the  
XX protein's tertiary structure, where the measuring identifies buffers that  
XX result retention of the protein's tertiary structure. The composition and  
XX methods are useful for preparing oral dosage forms for administration of  
XX proteins and polypeptides. The present sequence represents an interferon  
XX tau amino acid sequence, which is used in the exemplification of the  
XX present invention.

XX Sequence 172 AA;

Query Match 99.8%; Score 905; DB 8; Length 172;

Best Local Similarity 99.4%; Pred. No. 1.7e-92;

Matches 171; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYLSRKLMDARENKLLDRMNRISPHSCLQDRKDFGLPQEMVEGDQLQKQDQAPFVLYEM 60

Db 1 CYLSRKLMDARENKLLDRMNRISPHSCLQDRKDFGLPQEMVEGDQLQKQDQAPFVLYEM 60

QY 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMEEDSELGNMDPIVTV 120

Db 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMEEDSELGNMDPIVTV 120

QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTTSVTLQKRLTKMGDLNSP 172

Db 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTTSVTLQKRLTKMGDLNSP 172

## RESULT 12

AAR24942  
ID AAR24942 standard; protein; 195 AA.

XX

AC AAR24942;  
 XX 25-MAR-2003 (revised)  
 DT 03-JAN-1992 (first entry)  
 XX  
 XX Sequence of ovien trophoblastin variant Xa.  
 XX  
 XX Antiviral; antinflammatory; antitumour; immunomodulator; immunogen;  
 KW trophoblastin; antiluteolytic agent.  
 XX  
 OS Ammotragus lervia.  
 XX  
 XX Key Location/Qualifiers  
 FH Peptide 1..23  
 FT /label= signal  
 XX  
 XX W09209691-A1.  
 XX  
 XX 11-JUN-1992.  
 XX  
 XX 29-NOV-1991; 91WO-FR000953.  
 XX  
 XX 29-NOV-1990; 90FR-00014945.  
 PR 29-NOV-1990; 90FR-00014946.  
 XX  
 XX (INRG ) INRA INST NAT RECH AGRONOMIQUE.  
 PA  
 XX Martal J, Degryse E, Gaye P, Charlier M, Charpigny G, Reinaud P;  
 PI Chaouat G;  
 XX  
 XX WPI; 1992-217070/26.  
 XX  
 XX New type I interferon variants with added N-terminal di:peptide - include  
 PT expression cassettes providing high yield in yeast, esp. trophoblast  
 PT derivs. with e.g. anti-luteolytic activity.  
 XX  
 XX Claim 7; Page 30; 53pp; French.  
 XX  
 XX The DNA sequence encoding the precursor of ovine trophoblastin was  
 CC disclosed in PCT WO 85/08706 (see AAR24941). AAR24942-R24945 are isoforms  
 CC of trophoblastin. They have anti-luteolytic activity and are used to  
 CC improve survival of transplanted embryos; as a reagent for detecting  
 CC viability of embryos at an early stage of its development; and to improve  
 CC the fertility of livestock. (Updated on 25-MAR-2003 to correct PN field.)  
 XX  
 XX Sequence 195 AA;  
 SQ  
 Query Match 99.7%; Score 904; DB 2; Length 195;  
 Best Local Similarity 99.4%; Pred. No. 2.7e-92;  
 Matches 171; Conservative 1; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 CYLSRKLMDARENLKLLDRMNLSPHSCLODRKDFGLPQEMVEGDQLQKDAFPVLYEM 60  
 DB 24 CYLSRKLMDARENLKLLDRMNLSPHSCLODRKDFGLPQEMVEGDQLQKDAFPVLYEM 83  
 QY 61 LQOSFNLFTYTHSSAAWDTTLLLEQLCTGLQQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120  
 DB 84 LQOSFNLFTYTHSSAAWDTTLLDQLCTGLQQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 143  
 QY 121 KKYFGIYDYLQEGYSDCAWEIVRVMRALTSTTLOKRLTKMGDLNSP 172  
 DB 144 KKYFGIYDYLQEGYSDCAWEIVRVMRALTSTTLOKRLTKMGDLNSP 195  
 RESULT 13  
 AAB31457  
 ID AAB31457 standard; protein; 172 AA.  
 XX  
 XX AAB31457;  
 AC  
 XX 20-APR-2001 (first entry)  
 DT  
 XX Amino acid sequence of an ovine interferon-tau 1mod polypeptide.

XX Interferon-tau; IFN-tau; cancer; tumour growth; viral disease;  
 KW autoimmune disease; multiple sclerosis; adenocarcinoma; breast cancer;  
 KW prostate cancer; glioblastoma; melanoma; myeloma; lymphoma; leukaemia;  
 KW lung cancer; skin cancer; bladder cancer; kidney cancer; brain cancer;  
 KW ovarian cancer; pancreatic cancer; uterine cancer; bone cancer;  
 KW colorectal cancer; cervical cancer; neuroectodermal cancer; psoriasis;  
 KW monoclonal gammopathy; dysplasia; diabetes mellitus;  
 KW rheumatoid arthritis; lupus erythematosus.  
 XX  
 OS Ovis sp.  
 XX  
 XX W0200078266-A2.  
 XX  
 XX 28-DEC-2000.  
 XX  
 XX 22-JUN-2000; 2000WO-IB001080.  
 XX  
 XX 22-JUN-1999; 99US-0140411P.  
 PR  
 XX (UYMA-) UNIV MARYLAND BALTIMORE.  
 PA  
 XX Pontzer CH, Shorts LH, Clark CD;  
 XX  
 XX WPI; 2001-071357/08.  
 DR N-PSDB; AAF24827.  
 XX  
 XX Producing recombinant interferon tau analog proteins with improved  
 PT properties, useful for treating cancers, autoimmune diseases and viral  
 PT infections.  
 XX  
 XX Claim 5; Page 59-60; 70pp; English.  
 PS  
 XX The present sequence represents an ovine interferon-tau 1mod polypeptide.  
 CC The specification describes a method of making recombinant interferon  
 CC (IFN)-tau proteins, which differ from wild-type IFN-tau by amino acid  
 CC substitutions near the amino terminus of the molecule. The mutated IFN-  
 CC tau proteins have improved biological activity, low toxicity, retain the  
 CC same or slightly reduced antiviral activity compared with interferon  
 CC alpha, and have enhanced antiproliferative activity compared to wild-type  
 CC IFN-tau. The method is used for producing IFN-tau proteins with improved  
 CC biological activities and properties. These IFN-tau may be administered  
 CC to treat cancers and decrease tumour growth, treat viral diseases, treat  
 CC autoimmune diseases and treat multiple sclerosis. The cancer or tumour is  
 CC selected from the group comprising human adenocarcinoma, breast cancer,  
 CC prostate cancer, glioblastomas, melanomas, myelomas, lymphomas,  
 CC leukaemia, lung cancer, skin cancer, bladder cancer, kidney cancer, brain  
 CC cancer, ovarian cancer, pancreatic cancer, uterine cancer, bone cancer,  
 CC colorectal cancer, cervical cancer and neuroectodermal cancer, monoclonal  
 CC gammopathies and cervical and oral dysplasia. The autoimmune disease is  
 CC selected from Type I diabetes mellitus, rheumatoid arthritis, lupus  
 CC erythematosus and/or psoriasis. The viral infection is an RNA virus, a  
 CC human immuno deficiency virus (HIV) or hepatitis C virus  
 XX  
 XX Sequence 172 AA;  
 SQ  
 Query Match 99.2%; Score 900; DB 4; Length 172;  
 Best Local Similarity 99.4%; Pred. No. 6.3e-92;  
 Matches 171; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 CYLSRKLMDARENLKLLDRMNLSPHSCLODRKDFGLPQEMVEGDQLQKDAFPVLYEM 60  
 DB 1 CYLSRKLMDARENLKLLDRMNLSPHSCLODRKDFGLPQEMVEGDQLQKDAFPVLYEM 60  
 QY 61 LQOSFNLFTYTHSSAAWDTTLLLEQLCTGLQQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120  
 DB 61 LQOSFNLFTYTHSSAAWDTTLLLEQLCTGLQQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120  
 QY 121 KKYFGIYDYLQEGYSDCAWEIVRVMRALTSTTLOKRLTKMGDLNSP 172  
 DB 121 KKYFGIYDYLQEGYSDCAWEIVRVMRALTSTTLOKRLTKMGDLNSP 172

RESULT 14  
AAO21461  
ID AAO21461 standard; protein; 172 AA.  
XX  
XX AAO21461;  
XX  
XX 15-AUG-2002 (first entry)  
XX  
XX  
DE Ovine interferon-tau (OvIFN-tau) protein.  
XX  
XX Artificial ovine interferon-tau; OvIFN-tau; optimising; biased codon;  
KW high yield production.  
XX  
XX Ovis aries.  
OS Synthetic.  
XX  
XX WO200231178-A1.  
XX  
XX  
XX 18-APR-2002.  
XX  
XX 12-OCT-2001; 2001WO-US031862.  
XX  
XX 12-OCT-2000; 2000US-0239746P.  
XX  
XX (UABR-) UAB RES FOUND.  
XX  
XX Krishna R, Rodriguez E, Johnson H;  
PI  
XX  
XX WPI; 2002-426289/45.  
DR  
XX N-PSDB; AAL38060.  
XX  
XX New artificial ovine interferon-tau gene, useful for high protein  
PT production, constructed by reducing repetitive and palindromic sequences,  
PT lowering overall guanine and cytosine content and optimizing gene  
PT sequence.  
XX  
XX Disclosure; Fig 1A; 71pp; English.  
XX  
XX The invention relates to an artificial ovine interferon-tau (OvIFN-tau)  
CC gene designed for high yield protein production in yeast, and constructed  
CC by reducing repetitive sequences, lowering overall G+C content, reducing  
CC or eliminating palindromic sequences, and optimising the sequence of  
CC OvIFN-tau, using the biased codon usage in the yeast. The expression  
CC vector if the invention is useful for high yield production of OvIFN-tau  
CC in the yeast of *Pichia*, preferably *P. pastoris* X33 or *P. pastoris* GS115,  
CC by transforming the yeast with the expression vector, inducing protein  
CC expression with methanol, culturing the yeast in defined culture  
CC conditions such as shake flask or fermenter, and purifying the protein  
CC from culture media. This sequence represents the ovine interferon-tau  
CC (OvIFN-tau) protein of the invention  
XX  
XX Sequence 172 AA;  
CC

Query Match 99.2%; Score 900; DB 5; Length 172;  
Best Local Similarity 99.4%; Pred. No. 6.3e-92;  
Matches 171; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
Qy 1 CYSRKLMLDARENKLLDRNRLSPHSCLOQRKDFGLPQEWVEGDQLQKQAFPLVYEM 60  
Db 1 CYSRKLMLDARENKLLDRNRLSPHSCLOQRKDFGLPQEWVEGDQLQKQAFPLVYEM 60  
Qy 61 LQOSFNLFTYHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
Db 61 LQOSFNLFTYHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
Qy 121 KKYFGIYDYLOEKGYSDCAWEIVRVMRALTVSTTLQKRLTKMGGLNSP 172  
Db 121 KKYFGIYDYLOEKGYSDCAWEIVRVMRALTVSTTLQKRLTKMGGLNSP 172

Search completed: October 28, 2005, 14:56:01  
Job time : 124 secs

XX ABB07589;  
AC  
XX 08-MAY-2002 (first entry)  
XX  
XX Recombinant ovine interferon-tau protein.  
XX  
XX Hepatitis C virus; HCV infection; ovine; interferon-tau; ovIFN-tau; OAS;  
KW 2',5'-oligoadenylate synthetase; virucide; hepatotropic; IFN-tau.  
XX  
XX Ovis aries.  
OS  
XX WO200206343-A2.  
XX  
XX 24-JAN-2002.  
XX  
XX 19-JUL-2001; 2001WO-US022976.  
XX  
XX 19-JUL-2000; 2000US-0219128P.  
PR 17-OCT-2000; 2000JP-00317160.  
XX  
XX (PEPG-) PEPGEN CORP.  
XX  
XX Sokawa Y, Liu C;  
XX  
XX WPI; 2002-179784/23.  
DR N-PSDB; ABA94937.  
XX  
XX Oral-delivery composition for treating conditions relating to hepatitis  
PT caused by hepatitis C virus, comprises ovine interferon-tau which  
PT stimulates bloodstream levels of 2',5'-oligoadenylate synthetase.  
XX  
XX Example 1; Page 33; 33pp; English.  
XX  
XX The invention provides an oral-delivery composition for use in treating  
CC hepatitis C virus (HCV) in a HCV-infected patient. The composition  
CC comprises ovine interferon-tau (ovIFN-tau), in a dosage effective to  
CC stimulate bloodstream levels of 2',5'-oligoadenylate synthetase (OAS).  
CC The ovIFN-tau synthesizes OAS which degrades viral mRNA. A method is also  
CC provided for monitoring the treatment of HCV by oral administration of  
CC ovIFN-tau, by measuring the blood levels of OAS prior to and after such  
CC oral administration, and if necessary, adjusting the dose of IFN-tau  
CC until a measurable increase in blood OAS level, relative to the level  
CC observed prior to administration. The composition is useful for treating  
CC hepatitis caused by HCV and the method is useful for monitoring treatment  
CC of HCV by oral administration of ovIFN-tau. The present sequence  
CC represents a recombinant ovine interferon-tau protein  
XX  
XX Sequence 172 AA;  
CC

Query Match 99.1%; Score 899; DB 5; Length 172;  
Best Local Similarity 98.8%; Pred. No. 8.1e-92;  
Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;  
Qy 1 CYSRKLMLDARENKLLDRNRLSPHSCLOQRKDFGLPQEWVEGDQLQKQAFPLVYEM 60  
Db 1 CYSRKLMLDARENKLLDRNRLSPHSCLOQRKDFGLPQEWVEGDQLQKQAFPLVYEM 60  
Qy 61 LQOSFNLFTYHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
Db 61 LQOSFNLFTYHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
Qy 121 KKYFGIYDYLOEKGYSDCAWEIVRVMRALTVSTTLQKRLTKMGGLNSP 172  
Db 121 KKYFGIYDYLOEKGYSDCAWEIVRVMRALTVSTTLQKRLTKMGGLNSP 172

Search completed: October 28, 2005, 14:56:01  
Job time : 124 secs

GenCore version 5.1.6  
Copyright (c) 1993 - 2005 Compugen Ltd.

OM protein - protein search, using sw model

Run on: October 28, 2005, 14:51:03 ; Search time 25 Seconds  
(without alignments)

661.971 Million cell updates/sec

Title: US-10-719-472-2

Perfect score: 907

Sequence: 1 CYLSRKLMLDARENKLLDR.....TVSTTLQKRLTKWGGDLNSP 172

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues

Total number of hits satisfying chosen parameters: 283416

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

PIR 79:\*

1: pir1:\*

2: pir2:\*

3: pir3:\*

4: pir4:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Match	Length	ID	Description
1	897	98.9	195	2 JS0204	trophoblast interf
2	880	97.0	195	2 I47068	trophoblast protei
3	868	95.7	195	2 I47066	trophoblast protei
4	865	95.4	195	2 I47069	trophoblast protei
5	847	93.4	172	2 A61578	trophoblast interf
6	846	93.3	195	2 I46272	trophoblast protei
7	842	92.8	195	2 A61455	trophoblast protei
8	806	88.9	195	2 I47067	trophoblast protei
9	778	85.8	195	2 I47097	trophoblast protei
10	745	82.1	184	2 I47098	trophoblast protei
11	724	79.8	195	2 A39505	trophoblast interf
12	723	79.7	195	2 S23751	trophoblast interf
13	720	79.4	195	2 A40068	trophoblast protei
14	720	79.4	195	2 B39505	trophoblast protei
15	609	67.1	195	2 A53746	interferon, tropho
16	608	67.0	195	2 A61403	interferon alpha-I
17	587	64.7	195	2 I47070	interferon omega -
18	585	64.5	195	2 I46397	interferon alpha -
19	582	64.2	195	1 IVB011	interferon alpha-I
20	513.5	56.6	190	2 S23711	interferon alpha-I
21	499	55.0	195	1 IVH022	interferon alpha-I
22	497	54.8	110	2 B61578	trophoblast protei
23	488.5	53.9	190	2 S23712	interferon alpha-I
24	473	52.1	195	1 IVHUI1	interferon omega-I
25	469.5	51.8	179	2 S23710	interferon alpha-I
26	454	50.1	189	2 I51970	interferon precurs
27	446	49.2	176	2 I56314	interferon-alpha -
28	444	49.0	195	1 IVH021	interferon alpha-I
29	440	48.5	189	1 IVHUI4	interferon alpha-I

ALIGNMENTS

RESULT 1

JS0204

trophoblast interferon alpha precursor - sheep

N:Alternate names: antiluteolysin; trophoblast antiluteolytic protein; trophoblastic prot  
C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)

C:Date: 31-Mar-1990 #sequence revision 31-Mar-1990 #text change 09-Jul-2004

C:Accession: S03799; B61403; JS0204; A60947; A53867; S06221; S00306; A60857; A60936

R:Stewart, H.J.; Flint, A.P.F.; Lamming, G.E.; McCann, S.H.E.; Parkinson, T.J.

Submitted to the EMBL Data Library, June 1988

A:Reference number: S03799

A:Accession: S03799

A:Molecule type: DNA

A:Residues: 1-195 <STE>

A:Cross-references: UNIPROT:P56828; UNIPROT:P56829; EMBL:X07920; NID:g1821; PIDN:CAA3075;

R:Charlier, M.; Hue, D.; Boissard, M.; Martal, J.; Gaye, P.

Mol. Cell. Endocrinol. 76, 161-171, 1991

A:Title: Cloning and structural analysis of two distinct families of ovine interferon-alf

A:Reference number: A61403; MUID:92324492; PMID:1820971

A:Accession: B61403

A>Status: not compared with conceptual translation

A:Molecule type: DNA

A:Residues: 1-129,'K',131-195 <CHA>

R:Charlier, M.; Hue, D.; Martal, J.; Gaye, P.

Gene 77, 341-348, 1989

A:Title: Cloning and expression of cDNA encoding ovine trophoblastin: its identity with a

A:Reference number: JS0204; MUID:89326151; PMID:2753362

A:Accession: JS0204

A:Molecule type: mRNA

A:Residues: 1-195 <CHM>

A:Cross-references: GB:M26386; NID:g530199; PIDN:AAA31584.1; PID:g530200

A:Experimental source: embryo

R:Stewart, H.J.; McCann, S.H.E.; Northrop, A.J.; Lamming, G.E.; Flint, A.P.F.

J. Mol. Endocrinol. 2, 65-70, 1989

A:Title: Sheep antiluteolytic interferon: cDNA sequence and analysis of mRNA levels.

A:Reference number: A60947; MUID:89351557; PMID:2475129

A:Accession: A60947

A:Molecule type: mRNA

A:Residues: 1-195 <ST3>

R:Stewart, H.J.; Flint, A.P.F.; Lamming, G.E.; McCann, S.H.E.; Parkinson, T.J.

J. Reprod. Fertil. Suppl. 37, 127-138, 1989

A:Title: Antiluteolytic effects of blastocyst-secreted interferon investigated in vitro a

A:Reference number: A53867; MUID:90040431; PMID:2530342

A:Accession: A53867

A:Molecule type: mRNA

A:Residues: 1-195 <ST4>

R:Imakawa, K.; Anthony, R.V.; Kazemi, M.; Marrotti, K.R.; Polites, H.G.; Roberts, R.M.

Nature 330, 377-379, 1987

A:Title: Interferon-like sequence of ovine trophoblast protein secreted by embryonic trof

A:Reference number: S06221; MUID:88065855; PMID:2446135

A:Accession: S06221

A:Molecule type: mRNA

A:Residues: 1-27,'RK',30-105,'E',107-195 <IMA>

A;Cross-references: GB:Y00287; NID:g1357; PIDN:CAA68396.1; PID:g1358  
R;Charpigny, G.; Reinaud, P.; Huet, J.C.; Guillonot, M.; Charlier, J.C.;  
PESB Lett. 228, 12-16, 1988  
A;Title: High homology between a trophoblastic protein (trophoblaetin) isolated from ovi  
A;Reference number: S00306; MUID:88137579; PMID:3254170  
A;Accession: S00306  
A;Molecule type: protein  
A;Residues: 24-68 <CHG>  
R;Stewart, H.J.; McCann, S.H.E.; Barker, P.J.; Lee, K.E.; Lamming, G.E.; Flint, A.P.F.  
J. Endocrinol. 115, R13-R15, 1987  
A;Title: Interferon sequence homology and receptor binding activity of ovine trophoblast  
A;Reference number: A60857; MUID:88140688; PMID:2830359  
A;Accession: A60857  
A;Molecule type: protein  
A;Residues: 'X', 25-47, 'X', 49-51, 'D', 53, 'WOYXG', 59, 'XG', 62-63 <ST2>  
R;Roberts, R.M.; Imakawa, K.; Niwano, Y.; Kazemi, M.; Malathy, P.V.; Hansen, T.R.; Glase  
J. Interferon Res. 9, 175-187, 1989  
A;Title: Interferon production by the preimplantation sheep embryo.  
A;Reference number: A60936; MUID:89235312; PMID:2469745  
A;Accession: A60936  
A;Molecule type: protein  
A;Residues: 'S', 25-27, 'ET', 30-36, 'R', 38-44, 'E', 46-47 <ROB>  
A;Note: 29-Arg and 37-Asn were also found  
C;Comment: This protein is one of the major secretory proteins synthesized in vitro by d  
C;Comment: This protein prevents regression of the corpus luteum.  
C;Comment: Southern blotting reported in reference A61403 suggests there are at least fi  
pha-interferons.  
C;Genetics:  
A;Gene: oTP (TP-1)  
C;Superfamily: interferon alpha  
F:1-23/Domain: signal sequence #status predicted <SIG>  
F:24-195/Product: trophoblast interferon alpha #status experimental <MAT>  
  
Query Match 98.9%; Score 897; DB 2; Length 195;  
Best Local Similarity 98.3%; Pred. No. 6.8e-75;  
Matches 169; Conservative 3; Mismatches 0; Indels 0; Gaps 0;  
  
QY 1 CYLSRKLMLDARENKLLDRNRLSPHSCLOQRKDFGLPQEMVEGDQLQKQOAFPVLYEM 60  
DB 24 CYLSRRLMLDARENKLLDRNRLSPHSCLOQRKDFGLPQEMVEGDQLQKQOAFPVLYEM 83  
  
QY 61 LQOSFNLFYTEHSSAAWDTTLLEQLCTGLQOQLDHLDTCRQVMGEEDSELGNMDPIVTV 120  
DB 84 LQOSFNLFYTEHSSAAWDTTLLEQLCTGLQOQLDHLDTCRQVMGEEDSELGNMDPIVTV 143  
  
QY 121 KYFQGIYDYLQEKGYSDCAWEIVRVEMMRALTSTTLQKRLTKMGGLNSP 172  
DB 144 KKYFGQIYDYLQEKGYSDCAWEIVRVEMMRALTSTTLQKRLTKMGGLNSP 195  
  
RESULT 2  
I47068  
trophoblast protein-1 - sheep  
C;Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)  
C;Date: 15-Oct-1996 #sequence\_revision 15-Oct-1996 #text\_change 09-Jul-2004  
C;Accession: I47068  
R;Nephew, K.P.; Whaley, A.E.; Christenson, R.K.; Imakawa, K.  
Biol. Reprod. 48, 768-778, 1993  
A;Title: Differential expression of distinct mRNAs for ovine trophoblast protein-1 and  
A;Reference number: I46397; MUID:93250155; PMID:8485241  
A;Accession: I47068  
A;Status: preliminary; translated from GB/EMBL/DBJ  
A;Molecule type: DNA  
A;Residues: 1-195 <NEP>  
A;Cross-references: UNIPROT:Q08071; GB:M88771; NID:g165824; PIDN:AAA31505.1; PID:g165825  
C;Genetics:  
A;Gene: TP-07  
C;Superfamily: interferon alpha  
  
Query Match 97.0%; Score 880; DB 2; Length 195;  
Best Local Similarity 96.5%; Pred. No. 2.4e-73;  
Matches 166; Conservative 4; Mismatches 2; Indels 0; Gaps 0;  
  
QY 1 CYLSRKLMLDARENKLLDRNRLSPHSCLOQRKDFGLPQEMVEGDQLQKQOAFPVLYEM 60

QY 1 CYLSRKLMLDARENKLLDRNRLSPHSCLOQRKDFGLPQEMVEGDQLQKQOAFPVLYEM 60  
DB 24 CYLSRRLMLDARENKLLDRNRLSPHSCLOQRKDFGLPQEMVEGDQLQKQOAFPVLYEM 83  
  
QY 61 LQOSFNLFYTEHSSAAWDTTLLEQLCTGLQOQLDHLDTCRQVMGEEDSELGNMDPIVTV 120  
DB 84 LQOSFNLFYTEHSSAAWDTTLLEQLCTGLQOQLDHLDTCRQVMGEEDSELGNMDPIVTV 143  
  
QY 121 KYFQGIYDYLQEKGYSDCAWEIVRVEMMRALTSTTLQKRLTKMGGLNSP 172  
DB 144 KKYFGQIYDYLQEKGYSDCAWEIVRVEMMRALTSTTLQKRLTKMGGLNSP 195  
  
RESULT 3  
I47066  
trophoblast protein-1 - sheep  
C;Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)  
C;Date: 15-Oct-1996 #sequence\_revision 15-Oct-1996 #text\_change 09-Jul-2004  
C;Accession: I47066  
R;Nephew, K.P.; Whaley, A.E.; Christenson, R.K.; Imakawa, K.  
Biol. Reprod. 48, 768-778, 1993  
A;Title: Differential expression of distinct mRNAs for ovine trophoblast protein-1 and  
A;Reference number: I46397; MUID:93250155; PMID:8485241  
A;Accession: I47066  
A;Status: preliminary; translated from GB/EMBL/DBJ  
A;Molecule type: DNA  
A;Residues: 1-195 <NEP>  
A;Cross-references: UNIPROT:Q08070; GB:M88773; NID:g4416522; PIDN:AAA31503.1; PID:g165821  
C;Genetics:  
A;Gene: TP-010  
C;Superfamily: interferon alpha  
  
Query Match 95.7%; Score 868; DB 2; Length 195;  
Best Local Similarity 95.3%; Pred. No. 3.1e-72;  
Matches 164; Conservative 6; Mismatches 2; Indels 0; Gaps 0;  
  
QY 1 CYLSRKLMLDARENKLLDRNRLSPHSCLOQRKDFGLPQEMVEGDQLQKQOAFPVLYEM 60  
DB 24 CYLSRRLMLDARENKLLDRNRLSPHSCLOQRKDFGLPQEMVEGDQLQKQOAFPVLYEM 83  
  
QY 61 LQOSFNLFYTEHSSAAWDTTLLEQLCTGLQOQLDHLDTCRQVMGEEDSELGNMDPIVTV 120  
DB 84 LQOSFNLFYTEHSSAAWDTTLLEQLCTGLQOQLDHLDTCRQVMGEEDSELGNMDPIVTV 143  
  
QY 121 KYFQGIYDYLQEKGYSDCAWEIVRVEMMRALTSTTLQKRLTKMGGLNSP 172  
DB 144 KKYFGQIYDYLQEKGYSDCAWEIVRVEMMRALTSTTLQKRLTKMGGLNSP 195  
  
RESULT 4  
I47069  
trophoblast protein-1 - sheep  
C;Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)  
C;Date: 15-Oct-1996 #sequence\_revision 15-Oct-1996 #text\_change 09-Jul-2004  
C;Accession: I47069  
R;Nephew, K.P.; Whaley, A.E.; Christenson, R.K.; Imakawa, K.  
Biol. Reprod. 48, 768-778, 1993  
A;Title: Differential expression of distinct mRNAs for ovine trophoblast protein-1 and  
A;Reference number: I46397; MUID:93250155; PMID:8485241  
A;Accession: I47069  
A;Status: preliminary; translated from GB/EMBL/DBJ  
A;Molecule type: DNA  
A;Residues: 1-195 <NEP>  
A;Cross-references: UNIPROT:Q08072; GB:M88772; NID:g165826; PIDN:AAA31506.1; PID:g165827  
C;Genetics:  
A;Gene: TP-08  
C;Superfamily: interferon alpha  
  
Query Match 95.4%; Score 865; DB 2; Length 195;  
Best Local Similarity 94.8%; Pred. No. 5.8e-73;  
Matches 163; Conservative 6; Mismatches 3; Indels 0; Gaps 0;  
  
QY 1 CYLSRKLMLDARENKLLDRNRLSPHSCLOQRKDFGLPQEMVEGDQLQKQOAFPVLYEM 60

[illegible]

Qy 61 LQOSFNLFYTHSSAAWDTTLLBQLCTGLGQQQLDHLDDTCRGQVMGEDESESLGNMDP 172

Db 84 LQOSFNLFYTHSSAAWDTTLLDQLCTGLGQQQLDHLDDTCRGQVMGEKDSKSELGNMDP 172

Qy 121 KKYFGIYDYLOEKYSGDCAWETVRVEMMRALTSTTTLOKRLTKMGDDLNSP 172

Db 144 KKYFGIYDYLOEKYSGDCAWETVRVEMMRALTSTTTLOKRLTKMGDDLNSP 172

RESULT 7

A61455 trophoblast protein 1 precursor - sheep

N;Alternate names: interferon

C;Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)

C;Date: 15-Oct-1994 #sequence\_revision 15-Oct-1994 #text\_change 09-Jul-1996

C;Accession: A61455, S12624

R;Roberts, R.M.; Cross, J.C.; Farin, C.E.; Hansen, T.R.; Klemann, S.W. J. Reprod. Fertil. Suppl. 41, 63-74, 1990

A;Title: Interferons at the placental interface.

A;Reference number: A61455; MUID:91012357; PMID:2213717

A;Accession: A61455

A;Status: preliminary

A;Molecule type: mRNA

A;Residues: 1-195 <ROB>

A;Cross-references: UNIPROT:Q29429

R;Klemann, S.W.; Imakawa, K.; Roberts, R.M. Nucleic Acids Res. 18, 6724, 1990

A;Title: Sequence variability among ovine trophoblast interferon cDNA.

A;Reference number: S12624; MUID:31067497; PMID:1701245

A;Accession: S12624

A;Status: preliminary

A;Molecule type: mRNA

A;Residues: 1-195 <KLE>

A;Cross-references: EMBL:X56343; NID:g1155013; PIDN:CAA39783.1; PID:g1155013

A;Experimental source: clone oTP-1 p6

C;Superfamily: interferon alpha

F;1-23/Domain: signal sequence #status predicted <SIG>

F;24-195/Product: trophoblast protein 1 #status predicted <MAT>

Query Match 92.8%; Score 842; DB 2; Length 195;

Best Local Similarity 93.0%; Pred. No. 7.4e-70;

Matches 160; Conservative 6; Mismatches 6; Indels 0; Gaps 0

Qy 1 CYLSRKLMDARENLLKLLDRMRLSPHSCLQDRKDFGLPQEMVEGDQLKQQAQFV 172

Db 24 CYLSRKLMDARENLLKLLDRMRLSPHSCLQDRKDFGLPQEMVEGDQLKQQAQFV 172

Qy 61 LQOSFNLFYTHSSAAWDTTLLBQLCTGLGQQQLDHLDDTCRGQVMGEDESESLGNMDP 172

Db 84 LQOSFNLFYTHSSAAWDTTLLDQLCTGLGQQQLDHLDDTCRGQVMGEKDSKSELGNMDP 172

Qy 121 KKYFGIYDYLOEKYSGDCAWETVRVEMMRALTSTTTLOKRLTKMGDDLNSP 172

Db 144 KKYFGIYDYLOEKYSGDCAWETVRVEMMRALTSTTTLOKRLTKMGDDLNSP 172

RESULT 8

I47067 trophoblast protein-1 - sheep

C;Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)

C;Date: 15-Oct-1996 #sequence\_revision 15-Oct-1996 #text\_change 09-Jul-1997

C;Accession: I47067

R;Nepew, K.P.; Whaley, A.E.; Christenson, R.K.; Imakawa, K. Biol. Reprod. 48, 768-778, 1993

A;Title: Differential expression of distinct mRNAs for ovine trophoblast protein-1.

A;Reference number: I46397; MUID:93250155; PMID:8485241

A;Accession: I47067

A;Status: preliminary; translated from GB/EMBL/DDBJ

A;Molecule type: DNA

A;Residues: 1-195 <NEP>

A;Cross-references: UNIPROT:Q08053; GB:M88770; NID:g165822; PIDN:AAA31111

C;Genetics: 1997

A;Gene: TP-02

C;Superfamily: interferon alpha

Query Match 88.9%; Score 806; DB 2; Length 195;  
Best Local Similarity 89.5%; Pred. No. 1.5e-66;  
Matches 154; Conservative 9; Mismatches 9; Indels

Qy	1	CYLSRKLMADARENKILDRMNRSLPHSCLODRKDFGLPOBMVEGDOLOKDOAPFVLYEM	60
Db	24	CYLSRKLMADARENKILDRMNRSLPHSCLODRKDFGLPOBMVEGDOLOKDOAPFVLYEM	83
Qy	61	LOQSPNLFVTEHSSAANDTTLLLEQCTGLQOOLDHLDTCRGQVMGEBSDELGNMDIVTV	120
Db	84	LOQSPNLFVTEHSSAANDTTLLLEQCTGLQOOLDHLDTCRGQVMGEBSDELGNMDIVTV	143
Qy	121	KYFQGIYDYLQEKGYSCAWIEVRVENMRALTVSTTLQKRLTKMGDLNSP	172
Db	144	KYFQGIYDYLQEKGYSCAWIEVRVENMRALTVSTTLQKRLTKMGDLNSP	195

RESULT 9  
I47097  
trophoblast protein-1 - sheep  
C/Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)  
C/Date: 15-Oct-1996 #sequence\_revision 15-Oct-1996 #text\_change 09-Jul-2004  
C/Accession: I47097  
R/Leaman, D.W.; Roberts, R.M.  
J. Interferon Res. 12, 1-11, 1992  
A/Title: Genes for the trophoblast interferons in sheep, goat, and musk ox and distributed  
A/Reference number: I46272; MUID:92242937; PMID:1374107  
A/Accession: I47097  
A/Status: preliminary; translated from GB/EMBL/DBD  
A/Molecule type: DNA  
A/Residues: 1-195 <LEA>  
A/Cross-references: UNIPROT:P28169; GB:M73241; NID:gi166025; PIDN:AAA31573.1; PID:gi166026  
C/Genetics:  
A/Gene: OIP-1  
C/Superfamily: interferon alpha

Query Match	85.8%	Score 778;	DB 2;	Length 195;
Best Local Similarity	86.6%;	Pred. No. 5.4e-64;		
Matches 149;	Conservative 13;	Mismatches 10;	Indels 0;	Gaps 0;
Qy	1	CYLSRKMLDARENLKLLDRWNRLSPHSCIQDRKDFGLPQEMVSGDQKQDAAPFLVYEM	60	
Db	24	CYLSQRLMLDARENLRLDRWNRLSPHSCIQDRKDFGLPQEMVSGDQLQEAQFCVYEM	83	
Qy	61	LQGSFNLFYTEHSSAAADTTLLQCLCTGLQOQLDHLDTCRGVNVEEDSELGNMDPIVTV	120	
Db	84	LQGSFNLFHTESSAANNITLLQCLCTGLQOQLEDLDTCRGPVNGKXDELGNKMDPIVTV	143	
Qy	121	KYTFQGIYDYLQEKGYSCAWEIVRVEMRALTVSTTLQKRLTRMGDDLNSP	172	
Db	144	KYTFQGIHFYLKEKEYDCAWEIVRVEMRALSSSTSLQERLRRMGDDLNSP	195	

RESULT 10  
I47098  
trophoblast protein-1 - sheep  
C/Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)  
C/Date: 15-Oct-1996 #sequence\_revision 15-Oct-1996 #text\_change 16-Jul-1999  
C/Accession: I47098  
R/Leaman, D.W.; Roberts, R.M.  
J. Interferon Res. 12, 1-11, 1992  
A/Title: Genes for the trophoblast interferons in sheep, goat, and musk ox and distributed  
A/Reference number: I46272; MUID:92242937; PMID:1374107  
A/Accession: I47098  
A/Status: Preliminary; translated from GB/EMBL/DBDJ  
A/Molecule type: DNA  
A/Residues: 1-184 <LSA>  
A/Cross-references: GB:M73242; NID:G166027; PIDN:AAA31574.1; PID:G166028  
C/Genetics:  
C/Gene: OIP-1  
C/Superfamily: interferon alpha

Query Match	82.1%;	Score 745;	DB 2;	Length 184;
Best Local Similarity	88.8%;	Pred. No. 5.3e-61;		
Matches 142;	Conservative 10;	Mismatches 8;	Indels	

Qy	1	CYLSPKMLMDARENLKLLDRMNLSPHSCLODRKDFGLPQEMVSGDLOKDOQAEPVLVEM	60
Db	24	CYLSRRLMLDARENLRLDRMNLSPHSCLODRKDFGLPQEMVSGDLOQAQAFVLVEM	83
Qy	61	LOQSNNLIFYTEHSSAAWNTTLLLEQLCGLQOOLDHLDCRCQVNGEEDSELGNMDPIVTV	121
Db	84	LOQSNNLFIHTERSSAAWNTTLLLEQLCGLQOOLDELDCRCQVNGEKDSELGKMDPIVTV	141
Qy	121	KKYFGIGIDYLOEKGYSDCAWEIVRVENMRALTVSTTLQK	160
Db	144	KKYFGIGIDYLOEKGYSDCAWETVRVENMRALTSTSTLLK	183

```

RESULT 11
A39505
trophoblast interferon 4 precursor (clone bTP4) - bovine
C/Species: Bos primigenius taurus (cattle)
C/Date: 30-Dec-1991 #sequence_revision 30-Dec-1991 #text_change 09-Jul-2004
C/Accession: A39505
R/Hansen, T.R.; Leaman, D.W.; Cross, J.C.; Mathialagan, N.; Bixby, J.A.; Roberts, R.M.
J. Biol. Chem. 266, 3060-3067, 1991
A/Title: The genes for the trophoblast interferons and the related interferon-alphaII pos
A/Reference number: A39505; MUID:91131606; PMID:1704373
A/Accession: A39505
A/Status: Preliminary
A/Molecule type: mRNA
A/Residues: 1-195 <HAN>
A/Cross-references: UNIPROT:P15696; GB:M60908; NID:g163213; PIDN:AAA62711.1; PID:g163214;
C/Superfamily: Interferon alpha
F/I-23/Domain: signal sequence #status predicted <SIG>
F/24-195/Product: interferon alpha-II #status predicted <MAT>

```

Query Match	79.8%;	Score 724;	DB 2;	Length 195;
Best Local Similarity	80.7%;	Pred. No. 4.7e-59;		
Matches 138; Conservative	14;	Mismatches 19;	Indels 0;	Gaps 0;

  

QY	1	CYLRSKLMIDARENKLDRMNNELSPHSCLOQRDKDFGLPOEMVEGDDQLQKDQAPPVLIYEM	60
		:           :           :           :           :	
Db	24	CYLSENHMICARENRLRLARNELSPHPCLQDRDKDFGLPOEMVEGNQLQKDQAISVLHEM	83
		:           :           :           :           :	
QY	61	LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQQQLDHLDTCRGQVMGEBSDESLGNMDPIVTY	120
		:           :           :           :           :	
Db	84	LQOCFNLFYTEHSSAAWNTLLEQLCTGLQQQLLEDLDACLGPVMGEKSDMGMRGPILTY	143
		:           :           :           :           :	
QY	121	KKYFOGIYDYLBKGYSDCAWETIVRVEMRALTVTSTTLQKRLLTYMGGDINS	171
		:           :           :           :           :	
Db	144	KKYFOGIHYLVKEKEYSDCAWEIIRMEMRALSSTTTTLQKRLLRMVGDDLNS	194
		:           :           :           :           :	

RESULT 12  
S23751  
trophoblast interferon type I precursor - bovine  
C/Species: Bos primigenius taurus (cattle)  
C/Date: 19-Feb-1994 #sequence\_revision 10-Nov-1995 #text\_date 09-Jul-2004  
C/Accession: S23751  
R/Stewart, H.J.; McCann, S.H.E.; Flint, A.P.F.  
J. Mol. Endocrinol. 4, 275-282, 1990  
A/Title: Structure of an interferon-alpha2 gene expressed in the bovine conceptus early i  
A/Reference number: S23751; MUID:90334707; PMID:2378676  
A/Accession: S23751  
A/Status: preliminary  
A/Molecule type: DNA  
A/Residues: 1-195 <STE>  
A/cross-references: UNIPROT:P15696; EMBL:X65539; NID:g765; PIDN:CAA46506.1; PID:g766  
C/Superfamily: Interferon alpha

Query Match	79.7%;	Score	723;	DB 2;	Length	195;
Best Local Similarity	80.7%;	Pred. No.	5.9e-59;			



	Matches	138;	Conservative	13;	Mismatches	20;	Indels	0;	Gaps	0;
QY	1	CYL	SRLKMLDADENLKLDRMNRLLSPHSCQLQRDKFGLPQEMVEGQLOKQDAFFVLYEM	60	:	:	:	:	:	:
Dd	24	CYLS	EDHMLGARENLLRLARMNRLSPHPCLQRDKFGLPQEMVEGNQLQXQAISVLHEM	83	:	:	:	:	:	:
QY	61	LQOS	FNLFYTEHSAAWDTTLLEQLCTGLCQQQLDHLDTCRQGVMGEDSELGNMDPIVTY	120	:	:	:	:	:	:
Dd	84	LQOCLNLFYTEHSSAAWNTTLLLEQLCTGLCQQQLLEDLDACLGVPWGCKDSDMGRGPILTV	143	:	:	:	:	:	:	:
QY	121	KKYFGIYDYLOEKGYSDCAWEIVRVEMMRALTVTSTTLQKRLTYMGGD LNS	171	:	:	:	:	:	:	:
Dd	144	KKYFGIHYLYLKEYSYDCAWBIIRVEMMRALSSSTTLQKRLPKRMGGD LNS	194	:	:	:	:	:	:	:

RESULT 15  
A53746  
interferon, trophoblast - human  
C:Species: Homo sapiens (man)  
C:Date: 07-Oct-1994 #sequence\_revision 07-Oct-1994 #text\_change 09-Jul-2004  
C:Accession: A53746  
R:Whaley, A.E.; Meka, C.S.R.; Harbison, L.A.; Hunt, J.S.; Imakawa, K.  
J. Biol. Chem. 269, 10864-10868, 1994  
A:Title: Identification and cellular localization of unique interferon mRNA from human p  
A:Reference number: A53746; MUID:94193794; PMID:7511610  
A:Accession: A53746  
A>Status: preliminary  
A:Molecule type: mRNA  
A:Residues: 1-195 <WHA>  
A:Cross-references: UNIPROT:P37290; GB:L25664; NID:G479010; PID:AAA36123.1; PID:G479011  
C:Superfamily: interferon alpha

	QY	1	CYLSRKLMJDARENKLLDRMRNLSPHSCLODRKDPGLPOEMVEGQOLQKDQAFFVLYEM	60
			:   :	
	DB	24	CDLSQNHLVGRKNLRLLDEMRLSPHFCLODRKDPALPOEMVEGQOLQEQAISVLHEM	83
			:   :	
	QY	61	LQOSFNLFYTEHSSAAWDTTLLLEQLCTGHQOOLDLHLDTCRGOMVGEBDESELGNMDPIVTV	120
			:   :	
	DB	84	LQOSFNLFYTEHSSAAWDTTLLLEPCETGLHQOOLDNLDCLGQVMGEBDSALGRGTGTAL	143
			:   :	
	QY	121	KKYFGIYDYLQEKGYSDCAWEIVRVMMRALTVTSTLQKRITQMGGDLNSP	172
			:   :	
	DB	144	KXYFGIHVLYKEKGYSDCAWETVALEIMRSFSSLISLOERLRMMDDGLSSP	195
			:   :	

Search completed: October 28, 2005, 15:00:52  
Job time : 26 secs

THIS PAGE BLANK (USPTO)

GenCore version 5.1.6  
Copyright (c) 1993 - 2005 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: October 28, 2005, 14:49:06 ; Search time 115.5 Seconds  
(without alignments)  
762.577 Million cell updates/sec

Title: US-10-719-472-2  
Perfect score: 907  
Sequence: 1 CYLSRKLMLDARENKLLDR.....TVSTTLQKRLTKMGDLNSP 172

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Uniprot\_03.\*

1: uniprot\_sprot.\*

2: uniprot\_trembl.\*

pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	907	100.0	195	1 INT1 SHEEP	P56828 ovis aries
2	900	99.2	195	1 INT2 SHEEP	P56829 ovis aries
3	888	97.9	172	1 INT3 SHEEP	P56832 ovis aries
4	881	97.1	195	1 INT4 SHEEP	Q28594 ovis aries
5	880	97.0	195	1 INT7 SHEEP	Q08071 ovis aries
6	877	96.7	195	1 INT5 SHEEP	Q28595 ovis aries
7	868	95.7	195	1 INT9 SHEEP	Q08070 ovis aries
8	865	95.4	195	1 INT8 SHEEP	Q08072 ovis aries
9	846	93.3	195	1 INT_CAPHI	P28171 capra hircu
10	842	92.8	195	1 INT6 SHEEP	Q29429 ovis aries
11	830	91.5	195	2 Q6U249	Q6u249 capra hircu
12	830	91.5	195	2 Q6U250	Q6u250 capra hircu
13	816	90.0	172	2 Q6REF28	Q6rfz8 ovis aries
14	806	88.9	195	1 INTA SHEEP	Q08053 ovis aries
15	804	88.6	195	2 Q6U247	Q6u247 capra hircu
16	794	87.5	195	2 Q6U243	Q6u243 capra hircu
17	786	86.7	195	2 Q6U242	Q6u242 capra hircu
18	780	86.0	195	1 INT_OVIMO	P28172 ovibos mosc
19	778	85.8	195	1 INTB SHEEP	P28169 ovis aries
20	726	80.0	195	1 INT1 BOVIN	P15696 bos taurus
21	721	79.5	172	1 INT2 BOVIN	P56830 bos taurus
22	719	79.3	172	2 Q8MJ29	Q8mj29 bos taurus
23	717	79.1	195	2 Q9MYK6	Q9myk6 bos taurus
24	707	77.9	172	1 INT3 BOVIN	P56831 bos taurus
25	702	77.4	195	2 Q9GLL6	Q9gll6 bos taurus
26	696	76.7	172	2 Q6DUH3	Q6duh3 bison bison
27	693	76.4	195	2 Q9GLL5	Q9gll5 bos taurus
28	679	74.9	195	1 INT_GIRCA	Q95187 giraffa cam
29	653	72.0	195	1 INT_CEREL	Q46833 cervus elap
30	609	67.1	195	1 INT1_HUMAN	P37290 homo sapien
31	608	67.0	195	2 Q7M2Y7	Q7m2y7 ovis aries

RESULT 1				
INT1	SHEEP			
ID	INT1_SHEEP	STANDARD;	PRT;	195 AA.
AC	P56828; P08316;			
DT	01-AUG-1988 (Rel. 08, Created)			
DT	01-NOV-1990 (Rel. 16, Last sequence update)			
DT	25-OCT-2004 (Rel. 45, Last annotation update)			
DE	Interferon tau-1 precursor (IFN-tau) (Trophoblast protein-1) (TP-1)			
DE	(Trophoblastin) (Antiluteolysin) (Trophoblast antiluteolytic protein).			
GN	Name=IFN1; Synonyms=OTP;			
OS	Ovis aries (Sheep).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;			
OC	Caprinae; Ovis.			
OX	NCBI_TaxID=9940;			
RN	[1]_TaxID=9940;			
RP	SEQUENCE FROM N.A.			
RC	TISSUE=Trophoblast;			
RX	MEDLINE=88065855; PubMed=2446135; DOI=10.1038/330377a0;			
RX	Imakawa K., Antony R.V., Kazemi M., Marotti K.R., Polites H.G.,			
RA	Roberts R.M.;			
RT	"Interferon-like sequence of ovine trophoblast protein secreted by			
RT	embryonic trophoctoderm.";			
RL	Nature 330:377-379 (1987).			
RN	[2]			
RP	FUNCTION.			
RX	MEDLINE=96174804; PubMed=8603586; DOI=10.1210/en.137.3.1144;			
RA	Spencer T.E., Bazer F.W.;			
RT	"Ovine interferon tau suppresses transcription of the estrogen			
RT	receptor and oxytocin receptor genes in the ovine endometrium.";			
RL	Endocrinology 137:1144-1147 (1996).			
RN	[3]			
RP	CIRCULAR DICHOISM ANALYSIS, AND 3D-STRUCTURE MODELING.			
RX	MEDLINE=95062134; PubMed=7971949;			
RA	Jarpe M.A., Johnson H.M., Bazer F.W., Ott T.L., Curto E.V.,			
RA	Krishna N.R., Pontzer C.H.;			
RT	"Predicted structural motif of IFN tau.";			
RL	Protein Eng. 7:863-867 (1994).			
RN	[4]			
RP	3D-STRUCTURE MODELING.			
RX	MEDLINE=96318252; PubMed=8746786;			
RA	Senda T., Saitoh S.-I., Mitsui Y., Li J., Roberts R.M.;			
RT	"A three-dimensional model of interferon-tau.";			
RL	J. Interferon Cytokine Res. 15:1053-1060 (1995).			
RN	[5]			
RP	REVIEW.			
RX	MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7;			
RA	Martal J.L., Chene N.M., Huynh L.P., L'Haridon R.M., Reinaud P.B.,			
RA	Guilmonet M.W., Charlier S.Y.;			
RT	"IFN-tau: a novel subtype I IFN1. Structural characteristics, non-			
RT	ubiquitous expression, structure-function relationships, a pregnancy			
RT	hormonal embryonic signal and cross-species therapeutic			
RT	potentialities.";			
RL	Biochimie 80:755-777 (1998).			

P28170 ovis aries  
Q28561 ovis aries  
P07352 bos taurus  
Q6smg8 bos mutus g  
Q29085 sus scrofa  
P05002 equus caball  
Q29098 sus scrofa  
P05000 homo sapien  
Q29084 sus scrofa  
Q13168 homo sapien  
P05001 equus caball  
P01569 homo sapien  
P01570 homo sapien  
P01571 homo sapien

CC -!- FUNCTION: Paracrine hormone primarily responsible for maternal  
 CC recognition of pregnancy. Interacts with endometrial receptors,  
 CC probably type I interferon receptors, and blocks estrogen receptor  
 CC expression, preventing the estrogen-induced increase in oxytocin  
 CC receptor expression in the endometrium. This results in the  
 CC suppression of the pulsatile endometrial release of the luteolytic  
 CC hormone prostaglandin F2-alpha, hindering the regression of the  
 CC corpus luteum (luteolysis) and therefore a return to ovarian  
 CC cyclicity. This, and a possible direct effect of IFN-tau on  
 CC prostaglandin synthesis, leads in turn to continued ovarian  
 CC progesterone secretion, which stimulates the secretion by the  
 CC endometrium of the nutrients required for the growth of the  
 CC conceptus. In summary, displays particularly high antiviral and  
 CC antiproliferative potency concurrently with particular weak  
 CC cytotoxicity, high antiluteolytic activity and immunomodulatory  
 CC properties. In contrast with other IFNs, IFN-tau is not virally  
 CC inducible.  
 CC  
 CC -!- SUBCELLULAR LOCATION: Secreted into the uterine lumen.  
 CC  
 CC -!- TISSUE SPECIFICITY: Constitutively and exclusively expressed in  
 CC the mononuclear cells of the extra-embryonic trophoctoderm.  
 CC  
 CC -!- DEVELOPMENTAL STAGE: Major secretory product synthesized by the  
 CC sheep conceptus between days 13 and 21 of pregnancy.  
 CC  
 CC -!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from  
 CC IFN-omega genes in the ruminantia suborder and have continued to  
 CC duplicate independently in different lineages of the ruminantia.  
 CC They encode for proteins very similar in sequence but with  
 CC different biological potency and pattern of expression.  
 CC  
 CC -!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-  
 CC alpha1 subfamily.  
 CC  
 CC -----  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -  
 CC the European Bioinformatics Institute. There are no restrictions on its  
 CC use by non-profit institutions as long as its content is in no way  
 CC modified and this statement is not removed. Usage by and for commercial  
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>  
 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 CC EMBL; Y00287; CA668396.1; -.  
 CC PIR; S03799; JS0204.  
 CC PDB; 1B5L; X-ray; @=24-195.  
 CC InterPro; IPR009079; 4 Helix cytokine.  
 CC InterPro; IPR000471; Interferon\_abd.  
 CC Pfam; PF00143; Interferon; 1.  
 CC PRINTS; PR00266; INTERFERONAB.  
 CC ProDom; PD000550; Interferon\_abd; 1.  
 CC PROSITE; PS00252; INTERFERON\_A\_B\_D; 1.  
 CC 3D-structure; Antiviral; Cytokine; Hormone; Multigene family;  
 CC Pregnancy; Signal.  
 CC SIGNAL 1 23 By similarity.  
 CC CHAIN 24 195 Interferon tau-1.  
 CC DISULFID 24 122 By similarity.  
 CC DISULFID 52 162 By similarity.  
 CC TURN 25 26  
 CC HELIX 27 46  
 CC TURN 47 47  
 CC TURN 63 63  
 CC HELIX 64 68  
 CC TURN 69 69  
 CC HELIX 73 95  
 CC TURN 96 97  
 CC TURN 100 101  
 CC HELIX 103 122  
 CC HELIX 138 156  
 CC TURN 157 159  
 CC HELIX 161 186  
 CC SEQUENCE 195 AA; 22192 MW; A4965AE25DEA5BC9 CRC64;  
 CC  
 CC Query Match 100.0%; Score 907; DB 1; Length 195;  
 CC Best Local Similarity 100.0%; Pred. No. 3.3e-76;  
 CC Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 CC

Db 24 CYLSRKLMLDARENKLLDRMNLSPHSCLODRKDFGLPQEMVEGDQLQKQAFPVLVEM 83  
 Qy 61 LQSQFNLFYTEHSSAAWDTTLLEQLCTGLQQLDHLDTCRQVNGEEDSEIGNMDPIVTV 120  
 Db 84 LQSQFNLFYTEHSSAAWDTTLLEQLCTGLQQLDHLDTCRQVNGEEDSEIGNMDPIVTV 143  
 Qy 121 KKYFGQYDYLYOEKGYSDCAWEIVRVSMRALTVTSTTLOKRLTKWGGDLNSP 172  
 Db 144 KKYFGQYDYLYOEKGYSDCAWEIVRVSMRALTVTSTTLOKRLTKWGGDLNSP 195  
 RESULT 2  
 INT2\_SHEEP  
 ID INT2\_SHEEP STANDARD; PRT; 195 AA.  
 AC P56829; P08316;  
 DT 01-AUG-1998 (Rel. 08, Created)  
 DT 30-MAY-2000 (Rel. 39, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Interferon tau-2 precursor (IFN-tau2) (Trophoblast protein-1) (TP-1)  
 DE (Trophoblastin) (Antiluteolysin) (Trophoblast antiluteolytic protein).  
 GN Name=IFN12; (Sheep).  
 OS Ovis aries (Sheep).  
 OC Eukaryota; Metazoa;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Caprinae; Ovis.  
 OC NCBL\_TaxID=9940;  
 RN [1]  
 RP SEQUENCE FROM N.A. (IFN-TAU2C).  
 RX MEDLINE=90040431; PubMed=2530342;  
 RA Stewart H.J., Flint A.P., Lamming G.E., McCann S.H., Parkinson T.J.;  
 RA "Antiluteolytic effects of blastocyst-secreted interferon investigated  
 RA in vitro and in vivo in the sheep.";  
 RL J. Reprod. Fertil. Suppl. 37:127-138 (1989).  
 RN [2]  
 RP SEQUENCE FROM N.A. (IFN-TAU2C).  
 RX MEDLINE=89351557; PubMed=2475129;  
 RA Stewart H.J., McCann S.H., Northrop A.J., Lamming G.E., Flint A.P.;  
 RA "Sheep antiluteolytic interferon: cDNA sequence and analysis of mRNA  
 RA levels.";  
 RL J. Mol. Endocrinol. 2:65-70 (1989).  
 RN [3]  
 RP SEQUENCE FROM N.A. (IFN-TAU2C).  
 RX MEDLINE=89326151; PubMed=2753362; DOI=10.1016/0378-1119(89)90082-6;  
 RA Charlier M., Hue D., Martal J., Gaye P.;  
 RA "Cloning and expression of cDNA encoding ovine trophoblastin: its  
 RA identity with a class-II alpha interferon.";  
 RL Gene 77:341-348 (1989).  
 RN [4]  
 RP SEQUENCE FROM N.A. (IFN-TAU2C).  
 RX MEDLINE=91067497; PubMed=1701245;  
 RA Klemann S.W., Imakawa K., Roberts R.M.;  
 RA "Sequence variability among ovine trophoblast interferon cDNA.";  
 RL Nucleic Acids Res. 18:6724-6724 (1990).  
 RN [5]  
 RP SEQUENCE OF 24-195 FROM N.A. (IFN-TAU2A AND IFN-TAU2B).  
 RC TISSUE=Embryo;  
 RA Winkelman G.L., Roberts R.M., Peterson A.J., Alexenko A.P., Ealy A.D.;  
 RA "Identification of the expressed forms of ovine interferon-tau in the  
 RA peri-implantation conceptus: sequence relationships and comparative  
 RA biological activities.";  
 RL Submitted (JUN-1999) to the EMBL/GenBank/DBJ databases.  
 RN [6]  
 RP SEQUENCE OF 24-68.  
 RX MEDLINE=88137579; PubMed=3254170; DOI=10.1016/0014-5793(88)80574-X;  
 RA Charpigny G., Reinaud P., Huet J.-C., Guillemot M., Charlier M.,  
 RA Pernollet J.-C., Martal J.;  
 RA "High homology between a trophoblastic protein (trophoblastin)  
 RA isolated from ovine embryo and alpha-interferons.";  
 RL FEBS Lett. 228:12-16 (1988).  
 RN [7]  
 RP FUNCTION.

Qy 1 CYLSRKLMLDARENKLLDRMNLSPHSCLODRKDFGLPQEMVEGDQLQKQAFPVLVEM 60





probably type I interferon receptors, and blocks estrogen receptor expression, preventing the estrogen-induced increase in oxytocin receptor expression in the endometrium. This results in the suppression of the pulsatile endometrial release of the luteolytic hormone prostaglandin F2-alpha, hindering the regression of the corpus luteum (luteolysis), and therefore a return to ovarian cyclicity. This, and a possible direct effect of IFN-tau on prostaglandin synthesis, leads in turn to continued ovarian progesterone secretion, which stimulates the secretion by the endometrium of the nutrients required for the growth of the conceptus. In summary, displays particularly high antiviral and antiproliferative potency concurrently with particular weak cytotoxicity, high antiluteolytic activity and immunomodulatory properties. In contrast with other IFNs, IFN-tau is not virally inducible.

CC -1- SUBCELLULAR LOCATION: Secreted into the uterine lumen.

CC -1- TISSUE SPECIFICITY: Constitutively and exclusively expressed in the mononuclear cells of the extra-embryonic trophoblast.

CC -1- DEVELOPMENTAL STAGE: Major secretory product synthesized by the sheep conceptus between days 13 and 21 of pregnancy.

CC -1- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from IFN-omega genes in the ruminantia suborder and have continued to duplicate independently in different lineages of the ruminantia. They encode for proteins very similar in sequence but with different biological potency and pattern of expression.

CC -1- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-alpha1 subfamily.

CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See <http://www.isb-sib.ch/announce/> or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).

CC -----

DR EMBL: X56341; CAA9781.1; -.

DR HSSP: P56828; 1B5L.

DR InterPro: IPR009079; 4 helix cytokine.

DR InterPro: IPR000471; Interferon\_abd.

DR Pfam: PF00143; Interferon: 1.

DR PRINTS: PR00266; INTERFERONAB.

DR ProDom: PD000550; Interferon\_abd; 1.

DR PROSITE: PS00252; INTERFERON\_A\_B\_D; 1.

KW Antiviral; Cytokine; Hormone; Multigene family; Pregnancy; Signal.

FT SIGNAL 1 23 By similarity.

FT CHAIN 24 195 Interferon tau-4.

FT DISULFID 24 122 By similarity.

FT DISULFID 52 162 By similarity.

FT SEQUENCE 195 AA; 22209 MW; 408BD4BDBF5AA931 CRC64;

Query Match 97.1%; Score 881; DB 1; Length 195;

Best Local Similarity 96.5%; Pred.No.8.5e-74;

Matches 166; Conservative 5; Mismatches 1; Indels 0; Gaps 0;

QY 1 CYLSRLKMLDARENKLLDRMNRSLSPHSCLQDKFGLPQEWVEGDLQKDAFFVLYEM 60

DB 24 CYLSRLKMLDARENKLLDRMNRSLSPHSCLQDKFGLPQEWVEGDLQKDAFFVLYEM 83

QY 61 LQGSFNLFTYHSSAAWDTLLBOLCTGLCQQLDHLDTCRGQVMBEDELGNMDFIVT 120

DB 84 LQGSFNLFTYHSSAAWDTLLDQLCTGLCQQLDHLDTCRDQVMBEDELGNMDFIVT 143

QY 121 KKYFQGIYDLOEKGYSDCAWEIVRVMRALTVTTLQKRLTKMGDLNSP 172

DB 144 KKYFQGIYDLOEKGYSDCAWEIVRVMRALTVTTLQKRLTKMGDLNSP 195

RESULT 5

INT7 SHEEP

ID INT7 SHEEP STANDARD; PRT; 195 AA.

AC Q08071;

DT 30-MAY-2000 (Rel. 39, Created)

DT 30-MAY-2000 (Rel. 39, Last sequence update)

DE 05-JUL-2004 (Rel. 44, Last annotation update)

DE Interferon tau-7 precursor (IFN-tau7) (Trophoblast protein-1) (TP-1) (Trophoblastin) (Antiluteolysin) (Trophoblast antiluteolytic protein) (TP-07).

GN Name=IFNT7;

OS Ovis aries (Sheep).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; Caprinae; Ovis.

OX NCBI\_TaxID=9940;

RN [1]\_TaxID=9940;

RN SEQUENCE FROM N.A.

RC TISSUE=Trophoblast;

RX MEDLINE=93250155; PubMed=8485241;

RA Nephew K.P., Whaley A.E., Christenson R.K., Imakawa K.;

RT "Differential expression of distinct mRNAs for ovine trophoblast protein-1 and related sheep type I interferons.";

RL Biol. Reprod. 48:768-778(1993).

RN [2]

RN FUNCTION.

RX MEDLINE=96174804; PubMed=8603586; DOI=10.1210/en.137.3.1144;

RA Spencer T.E., Bazer F.W.;

RT "Ovine interferon tau suppresses transcription of the estrogen receptor and oxytocin receptor genes in the ovine endometrium.";

RT Endocrinology 137:1144-1147(1996).

RL [3]

RN CIRCULAR DICHOISM ANALYSIS, AND 3D-STRUCTURE MODELING.

RX MEDLINE=95062134; PubMed=7971949;

RA Jarpe M.A., Johnson H.M., Bazer F.W., Ott T.L., Curto E.V., Krishna N.R., Pontzer C.H.;

RT "Predicted structural motif of IFN tau.";

RL Protein Eng. 7:863-867(1994).

RN [4]

RN 3D-STRUCTURE MODELING.

RX MEDLINE=96318252; PubMed=8746786;

RA Senda T., Saitoh S.-I., Mitsui Y., Li J., Roberts R.M.;

RT "A three-dimensional model of interferon-tau.";

RL J. Interferon Cytokine Res. 15:1053-1060(1995).

RN [5]

RN REVIEW.

RX MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7;

RA Martal J.L., Chene N.M., Huynh L.P., L'Hardon R.M., Reinaud P.B., Guillomot M.W., Charlier M.A., Charpigny S.Y.;

RT "IFN-tau: a novel subtype I IFN1. Structural characteristics, non-ubiquitous expression, structure-function relationships, a pregnancy hormonal embryonic signal and cross-species therapeutic potentialities.";

RL Biochimie 80:755-777(1998).

CC -1- FUNCTION: Paracrine hormone primarily responsible for maternal recognition of pregnancy. Interacts with endometrial receptors, probably type I interferon receptors, and blocks estrogen receptor expression, preventing the estrogen-induced increase in oxytocin receptor expression in the endometrium. This results in the suppression of the pulsatile endometrial release of the luteolytic hormone prostaglandin F2-alpha, hindering the regression of the corpus luteum (luteolysis), and therefore a return to ovarian cyclicity. This, and a possible direct effect of IFN-tau on prostaglandin synthesis, leads in turn to continued ovarian progesterone secretion, which stimulates the secretion by the endometrium of the nutrients required for the growth of the conceptus. In summary, displays particularly high antiviral and antiproliferative potency concurrently with particular weak cytotoxicity, high antiluteolytic activity and immunomodulatory properties. In contrast with other IFNs, IFN-tau is not virally inducible.

CC -1- SUBCELLULAR LOCATION: Secreted into the uterine lumen.

CC -1- TISSUE SPECIFICITY: Constitutively and exclusively expressed in the mononuclear cells of the extra-embryonic trophoblast.

CC -1- DEVELOPMENTAL STAGE: Major secretory product synthesized by the sheep conceptus between days 13 and 21 of pregnancy.

CC -1- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from IFN-omega genes in the ruminantia suborder and have continued to

CC duplicate independently in different lineages of the ruminantia.  
 CC They encode for proteins very similar in sequence but with  
 CC different biological potency and pattern of expression.  
 CC -!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-  
 CC alphaii subfamily.  
 CC -----  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -  
 CC the European Bioinformatics Institute. There are no restrictions on its  
 CC use by non-profit institutions as long as its content is in no way  
 CC modified and this statement is not removed. Usage by and for commercial  
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>  
 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 CC EMBL; M88771; AA31505.1; -.  
 CC PIR; I47068; I47068.  
 CC HSSP; P56828; 1BSL.  
 CC InterPro; IPR009079; 4 helix cytokine.  
 CC InterPro; IPR000471; Interferon\_abd.  
 CC Pfam; PF00143; Interferon; 1.  
 CC PRINTS; PR00266; INTERFERONAB.  
 CC ProDom; PD000550; Interferon\_abd; 1.  
 CC PROSITE; PS00252; INTERFERON\_A\_B\_D; 1.  
 CC KW Antiviral; Cytokine; Hormone; Multigene family; Pregnancy; Signal.  
 FT SIGNAL 1 23 By similarity.  
 FT CHAIN 24 195 Interferon tau-7.  
 FT DISULFID 24 122 By similarity.  
 FT DISULFID 52 162 By similarity.  
 FT SEQUENCE 195 AA; 22223 MW; 1444AEDE80ABAB48 CRC64;  
 SQ  
 Query Match 97.0%; Score 880; DB 1; Length 195;  
 Best Local Similarity 96.5%; Pred. No. 1.1e-73;  
 Matches 166; Conservative 4; Mismatches 2; Indels 0; Gaps 0;  
 QY 1 CYLSKMLDARENKLDNRNLSPHSCLDKDKFGLPQENVGDLQKQDQAFPLVYEM 60  
 DB 24 CYLSRRLMDARENKLDNRNLSPHSCLDKDKFGLPQENVGDLQKQDQAFPLVYEM 83  
 QY 61 LQOSNLFYTHSSAANDTTLLEQLCTGLQQLDHLDTCRGQVMEGEDESELGNDPIVTV 120  
 DB 84 LQOSNLFYTHSSAANDTTLLEQLCTGLQQLDHLDTCRGQVMEGEDESELGNDPIVTV 143  
 QY 121 KVFQGIYDYLQKGYSCAWIEIVVMNRALTVTTLQKRLTKMGDGLNSP 172  
 DB 144 KVFQGIHYDYLQKGYSCAWIEIVVMNRALTTSITLQKRLTKMGDGLNSP 195  
 RESULT 6  
 ID INT5 SHEEP STANDARD; PRT; 195 AA.  
 AC Q28595.  
 DT 30-MAY-2000 (Rel. 39, Created)  
 DT 30-MAY-2000 (Rel. 39, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Interferon tau-5 precursor (IFN-tau5) (Trophoblast protein-1)  
 DE (Trophoblastin) (Antiluteolysin) (Trophoblast antiluteolytic protein)  
 DE (P5).  
 GN Name=IFNT5;  
 OS Ovis aries (Sheep).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Caprinae; Ovis.  
 OC NCBI\_TaxID=9940;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=91067497; PubMed=1701245;  
 RA Klemann S.W., Imakawa K., Roberts R.M.;  
 RT "Sequence variability among ovine trophoblast interferon cDNA.";  
 RL Nucleic Acids Res. 18:6724-6724(1990).  
 RN [2]  
 RP FUNCTION.  
 RX MEDLINE=96174804; PubMed=8603586; DOI=10.1210/en.137.3.1144;  
 RA Spencer T.E., Bazer F.W.;

"Ovine interferon tau suppresses transcription of the estrogen  
 receptor and oxytocin receptor genes in the ovine endometrium.";  
 RL Endocrinology 137:1144-1147(1996).  
 RN [3]  
 RP CIRCULAR DICHOISM ANALYSIS, AND 3D-STRUCTURE MODELING.  
 RX MEDLINE=95062134; PubMed=7971949;  
 RA Jarpe M.A., Johnson H.M., Bazer F.W., Ott T.L., Curto E.V.,  
 RA Krishna N.R., Pontzer C.H.;  
 RT "Predicted structural motif of IFN tau."  
 RL Protein Eng. 7:863-867(1994).  
 RN [4]  
 RP 3D-STRUCTURE MODELING.  
 RX MEDLINE=96318252; PubMed=8746786;  
 RA Senda T., Saitoh S.-I., Mitsui Y., Li J., Roberts R.M.;  
 RT "A three-dimensional model of interferon-tau."  
 RL J. Interferon Cytokine Res. 15:1053-1060(1995).  
 RN [5]  
 RP REVIEW.  
 RX MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7;  
 RA Martal J.L., Chene N.M., Huynh L.P., L'Haridon R.M., Reinaud P.B.,  
 RA Guillomot M.W., Charlier M.A., Charpigny S.F.;  
 RT "IFN-tau: a novel subtype I IFN1. Structural characteristics, non-  
 RT ubiquitous expression, structure-function relationships, a pregnancy  
 RT hormonal embryonic signal and cross-species therapeutic  
 RT potentialities.";  
 RL Biochimie 80:755-777(1998).  
 CC -!- FUNCTION: Paracrine hormone primarily responsible for maternal  
 CC recognition of pregnancy. Interacts with endometrial receptors,  
 CC probably type I interferon receptors, and blocks estrogen receptor  
 CC expression, preventing the estrogen-induced increase in oxytocin  
 CC receptor expression in the endometrium. This results in the  
 CC suppression of the pulsatile endometrial release of the luteolytic  
 CC hormone prostaglandin F2-alpha, hindering the regression of the  
 CC corpus luteum (luteolysis) and therefore a return to ovarian  
 CC cyclicity. This, and a possible direct effect of IFN-tau on  
 CC prostaglandin synthesis, leads in turn to continued ovarian  
 CC progesterone secretion, which stimulates the secretion by the  
 CC endometrium of the nutrients required for the growth of the  
 CC conceptus. In summary, displays particularly high antiviral and  
 CC antiproliferative potency concurrently with particular weak  
 CC cytotoxicity, high antiluteolytic activity and immunomodulatory  
 CC properties. In contrast with other IFNs, IFN-tau is not virally  
 CC inducible.  
 CC -!- SUBCELLULAR LOCATION: Secreted into the uterine lumen.  
 CC -!- TISSUE SPECIFICITY: Constitutively and exclusively expressed in  
 CC the mononuclear cells of the extra-embryonic trophoctoderm.  
 CC -!- DEVELOPMENTAL STAGE: Major secretory product synthesized by the  
 CC sheep conceptus between days 13 and 21 of pregnancy.  
 CC -!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from  
 CC IFN-omega genes in the ruminantia suborder and have continued to  
 CC duplicate independently in different lineages of the ruminantia.  
 CC They encode for proteins very similar in sequence but with  
 CC different biological potency and pattern of expression.  
 CC -!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-  
 CC alphaii subfamily.  
 CC -----  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -  
 CC the European Bioinformatics Institute. There are no restrictions on its  
 CC use by non-profit institutions as long as its content is in no way  
 CC modified and this statement is not removed. Usage by and for commercial  
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>  
 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 CC EMBL; X56342; CAA39782.1; -.  
 CC HSSP; P56828; 1BSL.  
 CC InterPro; IPR009079; 4 helix cytokine.  
 CC InterPro; IPR000471; Interferon\_abd.  
 CC Pfam; PF00143; Interferon; 1.  
 CC PRINTS; PR00266; INTERFERONAB.  
 CC ProDom; PD000550; Interferon\_abd; 1.  
 CC PROSITE; PS00252; INTERFERON\_A\_B\_D; 1.  
 CC Antiviral; Cytokine; Hormone; Multigene family; Pregnancy; Signal.  
 KW



```

FT SIGNAL 1 23 By similarity.
FT CHAIN 24 195 Interferon tau-5.
FT DISULFID 24 122 By similarity.
FT DISULFID 52 162 By similarity.
SQ SEQUENCE 195 AA; 22163 MW; 14EA9038CB60A562 CRC64;

Query Match 96.7%; Score 877; DB 1; Length 195;
Best Local Similarity 95.9%; Pred. No. 2e-73;
Matches 165; Conservative 6; Mismatches 1; Indels 0; Gaps 0;

QY 1 CYLSRKLMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDLQKQDQAFPLYEM 60
DB 24 CYLSQRLMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDLQKQDQAFPLYEM 83
QY 61 LOOSFNLFTYHSSAAWDTTLEQLCTGLQOQLDHLDTCRGVMGDESELGNMDDPIVTV 120
DB 84 LOOSFNLFTYHSSAAWDTTLEQLCTGLQOQLDHLDTCRGVMGDESELGNMDDPIVTV 143
QY 121 KYFQGIYDYLQEKGYSCDCAWEIVRVMRALTTSVTTLOKRLTKMGDLNSP 172
DB 144 KYFQGIYDYLQEKGYSCDCAWEIVRVMRALTTSVTTLOKRLTKMGDLNSP 195

RESULT 7
INT9 SHEEP STANDARD; PRT; 195 AA.
AC Q08070;
DT 30-MAY-2000 (Rel. 39, Created)
DT 30-MAY-2000 (Rel. 39, Last sequence update)
DT 05-JUL-2004 (Rel. 44, Last annotation update)
DE Interferon tau-9 precursor (IFN-tau9) (Trophoblast protein-1) (TP-1)
DE (Trophoblastin) (Antitileolysin) (Trophoblast antileuteolytic protein)
DE (TP-010).
GN Name=INT9;
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Caprinae; Ovis.
OX NCBI_TaxID=9940;
RN [1] _TaxID=9940;
RP SEQUENCE FROM N.A.
RC TISSUE=Trophectoderm;
RX MEDLINE=93250155; PubMed=8485241;
RA Nephew K.P., Whaley A.E., Christenson R.K., Imakawa K.;
RT "Differential expression of distinct mRNAs for ovine trophoblast
RT protein-1 and related sheep type I interferons."
RL Biol. Reprod. 48:768-778(1993).
RN [2]
RP FUNCTION.
RX MEDLINE=96174804; PubMed=8603586; DOI=10.1210/en.137.3.1144;
RA Spencer T.E., Bazer F.W.;
RT "Ovine interferon tau suppresses transcription of the estrogen
RT receptor and oxytocin receptor genes in the ovine endometrium."
RL Endocrinology 137:1144-1147(1996).
RN [3]
RP CIRCULAR DICHOISM ANALYSIS, AND 3D-STRUCTURE MODELING.
RX MEDLINE=95062134; PubMed=7971949;
RA Jarpe M.A., Johnson H.M., Bazer F.W., Ott T.L., Curto B.V.,
RA Krishna N.R., Pontzer C.H.;
RT "Predicted structural motif of IFN tau."
RL Protein Eng. 7:863-867(1994).
RN [4]
RP 3D-STRUCTURE MODELING.
RX MEDLINE=96318252; PubMed=8746786;
RA Senda T., Saitoh S.-I., Mitui Y., Li J., Roberts R.M.;
RT "A three-dimensional model of interferon-tau."
RL J. Interferon Cytokine Res. 15:1053-1060(1995).
RN [5]
RP REVIEW.
RX MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7;
RA Martal J.L., Chene N.M., Huynh L.P., L'Haridon R.M., Reinaud P.B.,
RA Guillomot M.W., Charlier M.A., Chapigny S.Y.;
RT "IFN-tau: a novel subtype I IFN. Structural characteristics, non-
```

```

ubiquitous expression, structure-function relationships, a pregnancy
hormonal embryonic signal and cross-species therapeutic
potentialities."
RL Biochimie 80:755-777(1998).
CC -!- FUNCTION: Paracrine hormone primarily responsible for maternal
CC recognition of pregnancy. Interacts with endometrial receptors,
CC probably type I interferon receptors, and blocks estrogen receptor
CC expression, preventing the estrogen-induced increase in oxytocin
CC receptor expression in the endometrium. This results in the
CC suppression of the pulsatile endometrial release of the luteolytic
CC hormone prostaglandin F2-alpha, hindering the regression of the
CC corpus luteum (luteolysis) and therefore a return to ovarian
CC cyclicity. This, and a possible direct effect of IFN-tau on
CC prostaglandin synthesis, leads in turn to continued ovarian
CC progesterone secretion, which stimulates the secretion by the
CC endometrium of the nutrients required for the growth of the
CC conceptus. In summary, displays particularly high antiviral and
CC antiproliferative potency concurrently with particular weak
CC cytotoxicity, high antileuteolytic activity and immunomodulatory
CC properties. In contrast with other IFNs, IFN-tau is not virally
CC inducible.
CC -!- SUBCELLULAR LOCATION: Secreted into the uterine lumen.
CC -!- TISSUE SPECIFICITY: Constitutively and exclusively expressed in
CC the mononuclear cells of the extra-embryonic trophoctoderm.
CC -!- DEVELOPMENTAL STAGE: Major secretory product synthesized by the
CC sheep conceptus between days 13 and 21 of pregnancy.
CC -!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from
CC IFN-omega genes in the ruminantia suborder and have continued to
CC duplicate independently in different lineages of the ruminantia.
CC They encode for proteins very similar in sequence but with
CC different biological potency and pattern of expression.
CC -!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-
CC alphaII subfamily.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
CC EMBL; M88773; AAA31503.1; -.
DR PIR; I47066; I47066.
DR HSP; P56828; IBSL.
DR InterPro; IPR009079; 4 helix cytokine.
DR InterPro; IPR000471; Interferon_abd.
DR Pfam; PF00143; Interferon; 1.
DR PRINTS; P00286; INTERFERONAB.
DR PRODOM; P000550; Interferon_abd; 1.
DR PROSITE; PS00252; INTERFERON_A_B_D; 1.
KW Antiviral; Cytokine; Hormone; Multigene family; Pregnancy; Signal.
FT SIGNAL 1 23 By similarity.
FT CHAIN 24 195 Interferon tau-9.
FT DISULFID 24 122 By similarity.
FT DISULFID 52 162 By similarity.
SQ SEQUENCE 195 AA; 22127 MW; 00DE9CB089D98493 CRC64;

Query Match 95.7%; Score 868; DB 1; Length 195;
Best Local Similarity 95.3%; Pred. No. 1.4e-72;
Matches 164; Conservative 6; Mismatches 2; Indels 0; Gaps 0;

QY 1 CYLSRKLMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDLQKQDQAFPLYEM 60
DB 24 CYLSQRLMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDLQKQDQAFPLYEM 83
QY 61 LOOSFNLFTYHSSAAWDTTLEQLCTGLQOQLDHLDTCRGVMGDESELGNMDDPIVTV 120
DB 84 LOOSFNLFTYHSSAAWDTTLEQLCTGLQOQLDHLDTCRGVMGDESELGNMDDPIVTV 143
QY 121 KYFQGIYDYLQEKGYSCDCAWEIVRVMRALTTSVTTLOKRLTKMGDLNSP 172
DB 144 KYFQGIYDYLQEKGYSCDCAWEIVRVMRALTTSVTTLOKRLTKMGDLNSP 195
```



"Genes for the trophoblast interferons in sheep, goat, and musk ox and distribution of related genes among mammals.";

[2] Interferon Res. 12:1-11(1992).

RT

RL MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7;  
 RA Martal J.L., Chene N.M., Huynh L.P., L'Haridon R.M., Reinaud P.B.,  
 RA Guilmot M.W., Charlier M.A., Charpigny S.Y.;  
 RA "IFN-tau, a novel subtype I IFN1. Structural characteristics, non-  
 RT ubiquitous expression, structure-function relationships, a pregnancy  
 RT hormonal embryonic signal and cross-species therapeutic  
 RT potentialities.";

RL Biochimie 80:755-777(1998).

CC -!- FUNCTION: Paracrine hormone primarily responsible for maternal  
 CC recognition of pregnancy. Interacts with endometrial receptors,  
 CC probably type I interferon receptors, and blocks estrogen receptor  
 CC expression, preventing the estrogen-induced increase in oxytocin  
 CC receptor expression in the endometrium. This results in the  
 CC suppression of the pulsatile endometrial release of the luteolytic  
 CC hormone prostaglandin F2-alpha, hindering the regression of the  
 CC corpus luteum (luteolysis) and therefore a return to ovarian  
 CC cyclicity. This, and a possible direct effect of IFN-tau on  
 CC prostaglandin synthesis, leads in turn to continued ovarian  
 CC progesterone secretion, which stimulates the secretion by the  
 CC endometrium of the nutrients required for the growth of the  
 CC conceptus. In summary, displays particularly high antiviral and  
 CC antiproliferative potency concurrently with particular weak  
 CC cytotoxicity, high antiluteolytic activity and immunomodulatory  
 CC properties. In contrast with other IFNs, IFN-tau is not virally  
 CC inducible.

CC -!- SUBCELLULAR LOCATION: Secreted into the uterine lumen.

CC -!- TISSUE SPECIFICITY: Constitutively and exclusively expressed in  
 CC the mononuclear cells of the extra-embryonic trophoblast.

CC -!- DEVELOPMENTAL STAGE: Major secretory product synthesized by the  
 CC conceptus during a very short period in early pregnancy.

CC -!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from  
 CC IFN-omega genes in the ruminantia suborder and have continued to  
 CC duplicate independently in different lineages of the ruminantia.  
 CC They encode for proteins very similar in sequence but with  
 CC different biological potency and pattern of expression.

CC -!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-  
 CC alpha1 subfamily.

-----  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -  
 CC the European Bioinformatics Institute. There are no restrictions on its  
 CC use by non-profit institutions as long as its content is in no way  
 CC modified and this statement is not removed. Usage by and for commercial  
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>  
 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----

DR EMBL; W73243; AAA30907.1; --

DR PIR; I46272; I46272.

DR HSP; P36828; IBSL.

DR InterPro; IPR009079; 4 helix cytokine.

DR InterPro; IPR000471; Interferon\_abd.

DR Pfam; PF00143; Interferon; 1.

DR PRINTS; PR00266; INTERFERONAB.

DR ProDom; PD000550; Interferon abd; 1.

DR PROSITE; PS00252; INTERFERON\_A\_B\_D; 1.

DR Antiviral; Cytokine; Hormone; Pregnancy; Signal.

FT SIGNAL 1 23 By similarity.

FT CHAIN 24 195 Interferon tau.

FT DISULFID 24 122 By similarity.

FT DISULFID 52 162 By similarity.

FT SEQUENCE 195 AA; 22172 MW; 049F91D3EB1CDB67 CRC64;

SQL

Query Match 93.3%; Score 846; DB 1; Length 195;

Best Local Similarity 93.6%; Pred. No. 1.5e-70;

Matches 161; Conservative 4; Mismatches 7; Indels 0; Gaps 0;

QY 1 CYLSRKLMDARENKLLDRMRLSPHSCLDRKDFGLPQEMVEGDQLQKQDAPVLYEM 60

|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||

Db 24 CYLSRKLMDARENKLLDRMRLSPHSCLDRKDFGLPQEMVEGDQLQKQDAPVLYEM 83  
 QY 61 LOOSNLFYTHSSAAWDTTLLEQLCTGLQOOLDHLDTCRGQVMGESELSGNMDPIVTV 120  
 Db 84 LOOSNLFYTHSSAAWDTTLLEQLCTGLQOOLDHLDTCRGQVMGESELSGNMDPIVTV 143  
 QY 121 KKYFGIYDYIQEKGYSCAMEIVRVMWRALTVSTTLQKRLTKMGDLNSP 172  
 Db 144 KKYFGIYDYIQEKGYSCAMEIVRVMWRALTVSTTLQKRLTKMGDLNSP 195

RESULT 10

INT6 SHEEP

ID INT6 SHEEP STANDARD; PRT; 195 AA.

AC Q29429;

DT 30-MAY-2000 (Rel. 39, Created)

DT 30-MAY-2000 (Rel. 39, Last sequence update)

DT 05-JUL-2004 (Rel. 44, Last annotation update)

DE Interferon tau-6 precursor (IFN-tau6) (Trophoblast protein-1) (TP-1)

DE (Trophoblastin) (Antiluteolysin) (Trophoblast antiluteolytic protein).

GN Name=IFNT6;

OS Ovis aries (Sheep).

OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;

OC Caprinae; Ovis.

OX NCBI\_TaxID=9940;

RP SEQUENCE FROM N.A. (IFN-TAU6D).

RC TISSUE=Embryo;

RX MEDLINE=91067497; PubMed=1701245;

RA Klemann S.W., Imakawa K., Roberts R.M.;

RT "Sequence variability among ovine trophoblast interferon cDNA.";

RL Nucleic Acids Res. 18:6724-6724(1990).

RN [2]

RP SEQUENCE FROM N.A. (IFN-TAU6D).

RA Roberts R.M.;

RL Submitted (JAN-1996) to the EMBL/GenBank/DBJ databases.

RN [3]

RP SEQUENCE OF 24-195 FROM N.A. (IFN-TAU6A; IFN-TAU6B AND IFN-TAU6C).

RC TISSUE=Embryo;

RA Winkelman G.L., Roberts R.M., Peterson A.J., Alexenko A.P., Ealy A.D.;

RT "Identification of the expressed forms of ovine interferon-tau in the

RT peri-implantation conceptus: sequence relationships and comparative

RL biological activities.";

RN Submitted (JUN-1999) to the EMBL/GenBank/DBJ databases.

RP FUNCTION.

RX MEDLINE=96174804; PubMed=8603586; DOI=10.1210/en.137.3.1144;

RA Spencer T.E., Bazer F.W.;

RT "Ovine interferon tau suppresses transcription of the estrogen

RT receptor and oxytocin receptor genes in the ovine endometrium.";

RL Endocrinology 137:1144-1147(1996).

RN [5]

RP CIRCULAR DICHOISM ANALYSIS, AND 3D-STRUCTURE MODELING.

RX MEDLINE=95062134; PubMed=7971949;

RA Jarpe M.A., Johnson H.M., Bazer F.W., Ott T.L., Curto E.V.,

RA Krishna N.R., Pontzer C.H.;

RT "Predicted structural motif of IFN tau.";

RL Protein Eng. 7:863-867(1994).

RN [6]

RP 3D-STRUCTURE MODELING.

RX MEDLINE=96318252; PubMed=8746786;

RA Senda T., Saitoh S.-I., Mitsui Y., Li J., Roberts R.M.;

RT "A three-dimensional model of interferon-tau.";

RL J. Interferon Cytokine Res. 15:1053-1060(1995).

RN [7]

RP REVIEW.

RX MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7;

RA Martal J.L., Chene N.M., Huynh L.P., L'Haridon R.M., Reinaud P.B.,

RA Guilmot M.W., Charlier M.A., Charpigny S.Y.;

RT "IFN-tau: a novel subtype I IFN1. Structural characteristics, non-

RT ubiquitous expression, structure-function relationships, a pregnancy

RT hormonal embryonic signal and cross-species therapeutic

RT

RT potentialities.":

RL Biochimie 80:755-777(1998).

CC -!- FUNCTION: Paracrine hormone primarily responsible for maternal

CC recognition of pregnancy. Interacts with endometrial receptors,

CC probably type I interferon receptors, and blocks estrogen receptor

CC expression, preventing the estrogen-induced increase in oxytocin

CC receptor expression in the endometrium. This results in the

CC suppression of the pulsatile endometrial release of the luteolytic

CC hormone prostaglandin F2-alpha, hindering the regression of the

CC corpus luteum (luteolysis) and therefore a return to ovarian

CC cyclicity. This, and a possible direct effect of IFN-tau on

CC prostaglandin synthesis, leads in turn to continued ovarian

CC progesterone secretion, which stimulates the secretion by the

CC endometrium of the nutrients required for the growth of the

CC conceptus. In summary, displays particularly high antiviral and

CC antiproliferative potency concurrently with particular weak

CC cytotoxicity, high antiluteolytic activity and immunomodulatory

CC properties. In contrast with other IFNs, IFN-tau is not virally

CC inducible.

CC -!- SUBCELLULAR LOCATION: Secreted into the uterine lumen.

CC -!- TISSUE SPECIFICITY: Constitutively and exclusively expressed in

CC the mononuclear cells of the extra-embryonic trophoctoderm.

CC -!- DEVELOPMENTAL STAGE: Major secretory product synthesized by the

CC sheep conceptus between days 13 and 21 of pregnancy.

CC -!- POLYMORPHISM: There seems to be four variants of IFN-tau 6:

CC A/P6V3, B/P6V2, C/P6V1 and D/P6/P12 (shown here).

CC -!- MISCELLANEOUS: IFN-tau genes are intronless. They evolved from

CC IFN-omega genes in the ruminantia suborder and have continued to

CC duplicate independently in different lineages of the ruminantia.

CC They encode for proteins very similar in sequence but with

CC different biological potency and pattern of expression.

CC -!- SIMILARITY: Belongs to the alpha/beta interferon family. IFN-

CC alphaii subfamily.

CC -----

CC This SWISS-PROT entry is copyright. It is produced through a collaboration

CC between the Swiss Institute of Bioinformatics and the EMBL outstation -

CC the European Bioinformatics Institute. There are no restrictions on its

CC use by non-profit institutions as long as its content is in no way

CC modified and this statement is not removed. Usage by and for commercial

CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>

CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).

CC -----

DR EMBL; X56343; CAA39783.1; --

DR EMBL; X56346; CAA39786.1; --

DR EMBL; AF158823; AAD44975.1; --

DR EMBL; AF158822; AAD44974.1; --

DR EMBL; AF158821; AAD44973.1; --

DR PIR; A61455; A61455.

DR HSP; P56828; IBSL.

DR InterPro; IPR009079; 4\_helix\_cytokine.

DR InterPro; IPR000471; Interferon\_abd.

DR Pfam; PF00143; Interferon; 1.

DR PRINTS; PR00266; INTERFERONAB.

DR ProDom; PD000550; Interferon\_abd; 1.

DR PROSITE; PS00252; INTERFERON\_A\_B\_D; 1.

KW Antiviral; Cytokine; Glycoprotein; Hormone; Multigene family;

KW Polymorphism; Pregnancy; Signal.

FT SIGNAL 1 23 By similarity.

FT CHAIN 24 195 Interferon tau-6.

FT DISULFID 24 122 By similarity.

FT DISULFID 52 162 By similarity.

FT CARBOHYD 101 101 N-linked (GlcNAc...) (Potential).

FT VARIANT 130 130 K -> E (in IFN-tau6A and IFN-tau6B).

FT VARIANT 136 136 K -> N (in IFN-tau6A, IFN-tau6B and IFN-

FT tau6C).

FT VARIANT 188 188 T -> M (in IFN-tau6A).

FT SEQUENCE 195 AA; 22102 MW; C8428392E78CA387 CRC64;

Query Match 92.8%; Score 842; DB 1; Length 195;

Best Local Similarity 93.0%; Pred No. 3.6e-70;

Matches 160; Conservative 6; Mismatches 6; Indels 0; Gaps 0;

Qy 1 CYLSRKMLDARENILKLLDRNRLSPHSCLODRKDFGLPQEMVGGDLQKQDAFPVLYEM 60

Db 24 CYLSRKMLDARENILKLLDRNRLSPHSCLODRKDFGLPQEMVGGDLQKQDAFPVLYEM 83

Qy 61 LQQSFNLFYTEHSSAAWDTTLEQLCTGLQQLDHLDTCRQVNMGEEDSELGNMDPIVTV 120

Db 84 LQQSFNLFYTEHSSAAWNTTLEQLCTGLQQLDHLDTCRGPVNGEKDSELGKMDPIVTV 143

Qy 121 KKYFGIYDYLOEKGYSDCAWEIVRVMRALTSTTTLQKRLTKMGDGLNSP 172

Db 144 KKYFGIHDYLOEKGYSDCAWEIVRVMRALTSTTTLQKRLTKMGDGLNSP 195

RESULT 11

Q6UZ49 PRELIMINARY; PRT; 195 AA.

ID Q6UZ49

AC Q6UZ49;

DT 05-JUL-2004 (TrEMBLrel. 27, Created)

DT 05-JUL-2004 (TrEMBLrel. 27, Last sequence update)

DT 05-JUL-2004 (TrEMBLrel. 27, Last annotation update)

DE Interferon-tau 3.

OS Capra hircus (Goat).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;

OC Caprinae; Capra.

OX NCBI\_TaxID=9925;

RN [1]

RP SEQUENCE FROM N.A.

RA Ealy A.D., Wagner S.K., Sheils A.E., Whitley N.C., Kiesling D.O.,

RA Barbato G.F.;

RL Submitted (JUL-2003) to the EMBL/GenBank/DBJ databases.

CC -!- SIMILARITY: Belongs to the alpha/beta interferon family.

DR EMBL; AY357329; AAQ56198.1; --

DR HSP; P56828; IBSL.

DR GO; GO:0005576; C:extracellular; IEA.

DR GO; GO:0005126; F:hematopoietin/interferon-class (D200-domain. . .; IEA.

DR GO; GO:0006952; P:defense response; IEA.

DR InterPro; IPR009079; 4\_helix\_cytokine.

DR InterPro; IPR000471; Interferon\_abd.

DR Pfam; PF00143; Interferon; 1.

DR PRINTS; PR00266; INTERFERONAB.

DR ProDom; PD000550; Interferon\_abd; 1.

DR SMART; SM00076; IFabd; 1.

DR PROSITE; PS00252; INTERFERON\_A\_B\_D; 1.

KW Antiviral; Cytokine.

SQ SEQUENCE 195 AA; 22294 MW; 323B782D1D16E69E CRC64;

Query Match 91.5%; Score 830; DB 2; Length 195;

Best Local Similarity 92.4%; Pred. No. 4.7e-69;

Matches 159; Conservative 6; Mismatches 7; Indels 0; Gaps 0;

Qy 1 CYLSRKMLDARENILKLLDRNRLSPHSCLODRKDFGLPQEMVGGDLQKQDAFPVLYEM 60

Db 24 CYLSRKMLDARENILKLLDRNRLSPHSCLODRKDFGLPQEMVGGDLQKQDAFPVLYEM 83

Qy 61 LQQSFNLFYTEHSSAAWDTTLEQLCTGLQQLDHLDTCRQVNMGEEDSELGNMDPIVTV 120

Db 84 LQQSFNLFYTEHSSAAWNTTLEQLCTGLQQLDHLDTCRGPVNGEKDSELGKMDPIVTV 143

Qy 121 KKYFGIYDYLOEKGYSDCAWEIVRVMRALTSTTTLQKRLTKMGDGLNSP 172

Db 144 KKYFGIHDYLOEKGYSDCAWEIVRVMRALTSTTTLQKRLTKMGDGLNSP 195

RESULT 12

Q6UZ50 PRELIMINARY; PRT; 195 AA.

ID Q6UZ50

AC Q6UZ50;

DT 05-JUL-2004 (TrEMBLrel. 27, Created)

DT 05-JUL-2004 (TrEMBLrel. 27, Last sequence update)

DT 05-JUL-2004 (TrEMBLrel. 27, Last annotation update)

DE Interferon-tau 2b (Interferon-tau 2a).

OS Capra hircus (Goat).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Euthera; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Caprinae; Capra.  
 OX NCBI\_TaxID=9925;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Early A.D., Wagner S.K., Sheils A.E., Whitley N.C., Kiesel D.O.,  
 RA Barbato G.F.;  
 RL Submitted (JUL-2003) to the EMBL/GenBank/DBJ databases.  
 CC -1- SIMILARITY: Belongs to the alpha/beta interferon family.  
 DR EMBL: AV357328; AAQ56197.1; -;  
 DR EMBL: AV357327; AAQ56196.1; -;  
 DR HSSP: P56828; 1B5L.  
 DR GO: GO:0005576; C:extracellular; IEA.  
 DR GO: GO:0005126; F:hematopoietin/interferon-class (D200-domain...); IEA.  
 DR GO: GO:0006952; P:defense response; IEA.  
 DR InterPro: IPR009079; 4\_helix\_cytokine.  
 DR InterPro: IPR000471; Interferon\_abd.  
 DR Pfam: PF00143; Interferon; 1.  
 DR PRINTS: PR00266; INTERFERONAB.  
 DR ProDom: PD000550; Interferon\_abd; 1.  
 DR SMART: SM00076; IFabd; 1.  
 DR PROSITE: PS00252; INTERFERON\_A\_B\_D; 1.  
 DR Antiviral; Cytokine.  
 SQ SEQUENCE 195 AA; 22313 MW; C99AC236A716F654 CRC64;  
 Query Match 91.5%; Score 830; DB 2; Length 195;  
 Best Local Similarity 92.4%; Pred. No. 4.7e-69;  
 Matches 159; Conservative 6; Mismatches 7; Indels 0; Gaps 0;  
 QY 1 CYLSRKLMLDARENKLLDRMNRSLPHSCLOQRKDFGLPQEMVEGDLQKQDAFPVLYEM 60  
 DB 24 CYLSRRLMLDARENRLRLDRMNRSLPHSCLOQRKDFGLPQEMVEGDLQKQDAFVLYEM 83  
 QY 61 LQOSFNLFYTEHSSAAWDTTLEQLCTGLQOQLDHLDTCRGQVMEEDSELGNMDDIVTV 120  
 DB 84 LQOTNLFYTEHSSAAWDTTLEQLCTGLQOQLDHLDTCRGQVMEEDSELGNMDDIVTV 143  
 QY 121 KVFQGIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDDLNSP 172  
 DB 144 KVFQGIHYDLQEKYSDCAWEIVRVMRALTSTTLQKRLTKMGDDLNSP 195

## RESULT 13

Q6RFZ8 PRELIMINARY; PRT; 172 AA.  
 AC Q6RFZ8;  
 DT 05-JUL-2004 (TrEMBLrel. 27, Created)  
 DT 05-JUL-2004 (TrEMBLrel. 27, Last sequence update)  
 DE Interferon tau (Fragment).  
 OS Ovis aries (Sheep).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Euthera; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Caprinae; Ovis.  
 OX NCBI\_TaxID=9940;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Wang X., Wang M., Xia C., Zhu D., Liou C., Bai Y.;  
 RL Submitted (DEC-2003) to the EMBL/GenBank/DBJ databases.  
 CC -1- SIMILARITY: Belongs to the alpha/beta interferon family.  
 DR EMBL: AY499657; AAR85892.1; -;  
 DR HSSP: P56828; 1B5L.  
 DR GO: GO:0005576; C:extracellular; IEA.  
 DR GO: GO:0005126; F:hematopoietin/interferon-class (D200-domain...); IEA.  
 DR GO: GO:0006952; P:defense response; IEA.  
 DR InterPro: IPR009079; 4\_helix\_cytokine.  
 DR InterPro: IPR000471; Interferon\_abd.  
 DR Pfam: PF00143; Interferon; 1.  
 DR PRINTS: PR00266; INTERFERONAB.  
 DR ProDom: PD000550; Interferon\_abd; 1.  
 DR SMART: SM00076; IFabd; 1.  
 DR PROSITE: PS00252; INTERFERON\_A\_B\_D; 1.  
 DR Antiviral; Cytokine.

FT NON TER 1  
 SQ SEQUENCE 172 AA; 19992 MW; 65984B2F91335046 CRC64;  
 Query Match 90.0%; Score 816; DB 2; Length 172;  
 Best Local Similarity 91.3%; Pred. No. 8e-66;  
 Matches 157; Conservative 7; Mismatches 8; Indels 0; Gaps 0;  
 QY 1 CYLSRKLMLDARENKLLDRMNRSLPHSCLOQRKDFGLPQEMVEGDLQKQDAFPVLYEM 60  
 DB 1 CYLSRQLMLDARENRLRLDRMNRSLPHSCLOQRKDFGLPQEMVEGDLQKQDAFVLYEM 60  
 QY 61 LQOSFNLFYTEHSSAAWDTTLEQLCTGLQOQLDHLDTCRGQVMEEDSELGNMDDIVTV 120  
 DB 61 LQOTNLFYTEHSSAAWDTTLEQLCTGLQOQLDHLDTCRGQVMEEDSELGNMDDIVTV 120  
 QY 121 KVFQGIYDYLQEKGYSDCAWEIVRVMRALTSTTLQKRLTKMGDDLNSP 172  
 DB 121 KVFQGIHYDLQEKYSDCAWEIVRVMRALTSTTLQKRLTKMGDDLNSP 172  
 RESULT 14  
 INTA SHEEP STANDARD; PRT; 195 AA.  
 ID INTA SHEEP STANDARD; PRT; 195 AA.  
 AC Q08053;  
 DT 30-MAY-2000 (Rel. 39, Created)  
 DT 30-MAY-2000 (Rel. 39, Last sequence update)  
 DT 05-JUL-2004 (Rel. 44, Last annotation update)  
 DE Interferon tau-10 precursor (IFN-tau10) (Trophoblast protein-1) (TP-1)  
 DE (Trophoblastin) (Antiluteolysin) (Trophoblast antiluteolytic protein)  
 DE (TP-02).  
 GN Name=IFNT10;  
 OS Ovis aries (Sheep).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Euthera; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Caprinae; Ovis.  
 OX NCBI\_TaxID=9940;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Trophectoderm;  
 RX MEDLINE=93250155; PubMed=8485241;  
 RA Nephew K.P., Whaley A.E., Christenson R.K., Imakawa K.;  
 RT "Differential expression of distinct mRNAs for ovine trophoblast  
 RT protein-1 and related sheep type I interferons.";  
 RL Biol. Reprod. 48:768-778(1993).  
 RN [2]  
 RP FUNCTION.  
 RX MEDLINE=96174804; PubMed=8603586; DOI=10.1210/en.137.3.1144;  
 RA Spencer T.E., Bazer F.W.;  
 RT "Ovine interferon tau suppresses transcription of the estrogen  
 RT receptor and oxytocin receptor genes in the ovine endometrium.";  
 RL Endocrinology 137:1144-1147(1996).  
 RN [3]  
 RP CIRCULAR DICHOISM ANALYSIS, AND 3D-STRUCTURE MODELING.  
 RX MEDLINE=95062134; PubMed=7971949;  
 RA Jarpe M.A., Johnson H.M., Bazer F.W., Ott T.L., Curto E.V.,  
 RA Krishna N.R., Pontzer C.H.;  
 RT "Predicted structural motif of IFN tau.";  
 RL Protein Eng. 7:863-867(1994).  
 RN [4]  
 RP 3D-STRUCTURE MODELING.  
 RX MEDLINE=96318252; PubMed=8746786;  
 RA Senda T., Saitoh S.-I., Mitsui Y., Li J., Roberts R.M.;  
 RT "A three-dimensional model of interferon-tau.";  
 RL J. Interferon Cytokine Res. 15:1053-1060(1995).  
 RN [5]  
 RP REVIEW.  
 RX MEDLINE=99081096; PubMed=9865498; DOI=10.1016/S0300-9084(99)80029-7;  
 RA Martal J.L., Chene N.M., Huynh L.P., L'Hardon R.M., Reinaud P.B.,  
 RA Guillomot M.W., Charlier M.A., Charpigny S.Y.;  
 RT "IFN-tau: a novel subtype I IFN1. Structural characteristics, non-  
 RT ubiquitous expression, structure-function relationships, a pregnancy  
 RT hormonal embryonic signal and cross-species therapeutic  
 RT potentialities.";

```

RESULT 15
Q6UZ47
ID Q6UZ47 PRELIMINARY; PRT; 195 AA.
AC Q6UZ47;
DT 05-JUL-2004 (TrEMBLrel. 27, Created)
DT 05-JUL-2004 (TrEMBLrel. 27, Last sequence update)
DT 05-JUL-2004 (TrEMBLrel. 27, Last annotation update)
DE Interferon-tau 4b (Interferon-tau 4c) (Interferon-tau 4d) (Interferon-
DE tau 4e) (Interferon-tau 4a).
OS Capra hircus (Goat).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Caprinae; Capra.
OC NCBI_TaxID=9925;
RN [1]
RP SEQUENCE FROM N.A.
RA Early A.D., Wagner S.K., Sheils A.E., Whitley N.C., Kiesel D.O.,
RA Barbato G.F.;
RL Submitted (JUL-2003) to the EMBL/GenBank/DBJ databases.
CC -!- SIMILARITY: Belongs to the alpha/beta interferon family.
DR EMBL; AY357331; AAQ56200.1; -
DR EMBL; AY357332; AAQ56201.1; -
DR EMBL; AY357333; AAQ56202.1; -
DR EMBL; AY357334; AAQ56203.1; -
DR EMBL; AY357330; AAQ56199.1; -
DR HSSP; P56828; 1B5L.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005126; F:hematopoietin/interferon-class (D200-domain. . .; IEA.
DR GO; GO:0006952; P:defense response; IEA.
DR InterPro; IPR009079; 4_helix_cytokine.
DR Pfam; PF00143; Interferon; 1.
DR PRINTS; PR00266; INTERFERONAB.
DR ProDom; PD000550; Interferon_abd; 1.
DR SMART; SM00076; IFabd; 1.
DR PROSITE; PS00252; INTERFERON_A_B_D; 1.
DR Antiviral; Cytokine.
KW SEQUENCE 195 AA; 22354 MW; D364AC9A972D8FC4 CRC64;

Query Match 88.6%; Score 804; DB 2; Length 195;
Best Local Similarity 90.1%; Pred. No. 1.2e-66;
Matches 155; Conservative 8; Mismatches 9; Indels 0; Gaps 0;

QY 1 CYLSRKLMLDARENKLLDRMNRSLSPHSCLQDRKDFGLPQENVVEGDQLQDQAFVLYEM 60
Db |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
24 CYLSRRLMLDARENLRLLDRMNRSLSPHSCLQDRKDFGLPQENVVEGDQLQDQAFVLYEM 83
QY 61 LOOSFNLFVTEHSSAAWDTTLLEQLCTGLQQQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
Db |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
84 LQOTNLFNFRTERSAAWNTTLLEQLHTGLQQQLDHLDTCRGLVMGEKSELGNMDDPIVTV 143
QY 121 KKYFGQIVDYLOEKGYSDCAWIVRVEMMRALTTSVTTLOKRLTKMGGLNSP 172
Db |||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
144 KKYFGQIHDYLOEKGYSDCAWIVRVEMMRALTTSVTTLOKRLTKMGGLNSP 195

Search completed: October 28, 2005, 14:59:57
Job time : 117.5 secs

```

Search completed: October 28, 2005, 14:59:57  
Job time : 117.5 secs

COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent in Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/10/029,890  
FILING DATE: 21-Dec-2001  
CLASSIFICATION: <Unknown>  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US/08/616,904  
FILING DATE: 15-MAR-1996  
ATTORNEY/AGENT INFORMATION:  
NAME: Sholtz, Charles K.  
REGISTRATION NUMBER: 38,615  
REFERENCE/DOCKET NUMBER: 5600-0003  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 415-324-0880  
TELEFAX: 415-324-0960  
INFORMATION FOR SEQ ID NO: 2:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 172 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
ORIGINAL SOURCE:  
INDIVIDUAL ISOLATE: amino acid sequence of a mature  
Ov1FNTau protein  
SEQUENCE DESCRIPTION: SEQ ID NO: 2:  
US-10-029-890-2

Query Match 99.1%; Score 899; DB 14; Length 172;  
Best Local Similarity 98.8%; Pred. No. 9.9e-88;  
Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;  
Qy 1 CYLSERLMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKDAQFPVLYEM 60  
Db 1 CYLSRKLMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKDAQFPVLYEM 60  
Qy 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
Db 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
Qy 121 KKYFGIYDYLQEKGYSDCAWEIVRVENMRALTSTTLQKRLTKMGGLNSP 172  
Db 121 KKYFGIYDYLQEKGYSDCAWEIVRVENMRALTSTTLQKRLTKMGGLNSP 172

RESULT 15  
US-10-346-269-2  
Sequence 2, Application US/10346269  
Publication No. US20030219405A1  
GENERAL INFORMATION:  
APPLICANT: Sokawa, Yoshihiro  
APPLICANT: Liu, Chih-Ping  
TITLE OF INVENTION: Oral Administration of Interferon-tau  
FILE REFERENCE: 55600.8009.US00  
CURRENT APPLICATION NUMBER: US/10/346,269  
CURRENT FILING DATE: 2003-01-16  
PRIOR APPLICATION NUMBER: US 60/349,658  
PRIOR FILING DATE: 2002-01-16  
NUMBER OF SEQ ID NOS: 3  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 2  
LENGTH: 172  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURE:  
OTHER INFORMATION: amino acid encoded by SEQ ID NO:1  
US-10-346-269-2

Query Match 99.1%; Score 899; DB 15; Length 172;  
Best Local Similarity 98.8%; Pred. No. 9.9e-88;

Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;  
Qy 1 CYLSERLMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKDAQFPVLYEM 60  
Db 1 CYLSRKLMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKDAQFPVLYEM 60  
Qy 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
Db 61 LQOSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDPIVTV 120  
Qy 121 KKYFGIYDYLQEKGYSDCAWEIVRVENMRALTSTTLQKRLTKMGGLNSP 172  
Db 121 KKYFGIYDYLQEKGYSDCAWEIVRVENMRALTSTTLQKRLTKMGGLNSP 172

Search completed: October 28, 2005, 15:05:44  
Job time : 117 secs

Db 61 LQOSFNLFYTEHSSAAWDTLLLEQLCTGLQQQLDHLDTCRGQVMGEEDSELGNMDFIVT 120  
QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTTSVTTLOKRLTKMGDDLNSP 172  
Db 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTTSVTTLOKRLTKMGDDLNSP 172  
RESULT 12  
US-09-746-919-2  
; Sequence 2, Application US/09746919  
; Patent No. US20020013452A1  
; GENERAL INFORMATION:  
; APPLICANT: Johnson, Howard M.  
; APPLICANT: Pontzer, Carol H.  
; TITLE OF INVENTION: Interferon Tau Compositions and  
; TITLE OF INVENTION: Methods of Use  
; NUMBER OF SEQUENCES: 44  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Dehlinger & Associates  
; STREET: 350 Cambridge Ave., Suite 250  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Floppy disk  
; COMPUTER: IBM PC compatible  
; OPERATING SYSTEM: PC-DOS/MS-DOS  
; SOFTWARE: PatentIn Release #1.0, Version #1.25  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/09/746,919  
; FILING DATE:  
; CLASSIFICATION:  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: 09/045,467  
; FILING DATE:  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 08/438,753  
; FILING DATE: 10-MAY-1995  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 08/139,891  
; FILING DATE: 19-OCT-1993  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/847,741  
; FILING DATE: 09-MAR-1992  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/318,050  
; FILING DATE: 02-MAR-1989  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER: US 07/969,890  
; FILING DATE: 30-OCT-1992  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Dehlinger, Peter J.  
; REGISTRATION NUMBER: 28,006  
; REFERENCE/DOCKET NUMBER: 5600-0001.36  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 650-324-0880  
; TELEFAX: 650-324-0960  
; INFORMATION FOR SEQ ID NO: 2:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 172 amino acids  
; TYPE: amino acid  
; TOPOLOGY: linear  
; MOLECULE TYPE: protein  
; ORIGINAL SOURCE:  
; INDIVIDUAL ISOLATE: amino acid sequence of a mature  
; INDIVIDUAL ISOLATE: OviFNTau protein  
US-09-746-919-2  
Query Match 99.1%; Score 899; DB 9; Length 172;  
Best Local Similarity 98.8%; Pred. No. 9.9e-88;  
Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 CYLSERLMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKQDQAFPVLYEM 60  
Db 1 CYLSERKMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKQDQAFPVLYEM 60  
QY 61 LQOSFNLFYTEHSSAAWDTLLLEQLCTGLQQQLDHLDTCRGQVMGEEDSELGNMDFIVT 120  
Db 61 LQOSFNLFYTEHSSAAWDTLLLEQLCTGLQQQLDHLDTCRGQVMGEEDSELGNMDFIVT 120  
QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTTSVTTLOKRLTKMGDDLNSP 172  
Db 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTTSVTTLOKRLTKMGDDLNSP 172  
RESULT 13  
US-09-910-406C-2  
; Sequence 2, Application US/09910406C  
; Publication No. US20030049277A1  
; GENERAL INFORMATION:  
; APPLICANT: Sokawa, Yoshiro  
; APPLICANT: Liu, Chih-Ping  
; TITLE OF INVENTION: Composition for Treatment of and Method  
; TITLE OF INVENTION: of Monitoring Hepatitis C Virus Using Interferon-tau  
; FILE REFERENCE: 5600-0004.30  
; CURRENT APPLICATION NUMBER: US/09/910,406C  
; CURRENT FILING DATE: 2002-07-02  
; PRIOR APPLICATION NUMBER: JP 317160  
; PRIOR FILING DATE: 2000-10-17  
; PRIOR APPLICATION NUMBER: US 60/219,128  
; PRIOR FILING DATE: 2000-07-19  
; NUMBER OF SEQ ID NOS: 4  
; SOFTWARE: FastSeq for Windows Version 4.0  
; SEQ ID NO 2  
; LENGTH: 172  
; TYPE: PRT  
; ORGANISM: Ovis Aries  
US-09-910-406C-2  
Query Match 99.1%; Score 899; DB 10; Length 172;  
Best Local Similarity 98.8%; Pred. No. 9.9e-88;  
Matches 170; Conservative 1; Mismatches 1; Indels 0; Gaps 0;  
QY 1 CYLSERLMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKQDQAFPVLYEM 60  
Db 1 CYLSERKMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKQDQAFPVLYEM 60  
QY 61 LQOSFNLFYTEHSSAAWDTLLLEQLCTGLQQQLDHLDTCRGQVMGEEDSELGNMDFIVT 120  
Db 61 LQOSFNLFYTEHSSAAWDTLLLEQLCTGLQQQLDHLDTCRGQVMGEEDSELGNMDFIVT 120  
QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTTSVTTLOKRLTKMGDDLNSP 172  
Db 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTTSVTTLOKRLTKMGDDLNSP 172  
RESULT 14  
US-10-029-890-2  
; Sequence 2, Application US/10029890  
; Publication No. US20030012766A1  
; GENERAL INFORMATION:  
; APPLICANT: Soos, Jeanne M.  
; APPLICANT: Schiffenbauer, Joel  
; APPLICANT: Johnson, Howard M.  
; TITLE OF INVENTION: Orally-Administered Interferon-Tau  
; TITLE OF INVENTION: Compositions and Methods  
; NUMBER OF SEQUENCES: 6  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Dehlinger & Associates  
; STREET: 350 Cambridge Ave., Suite 250  
; CITY: Palo Alto  
; STATE: CA  
; COUNTRY: USA  
; ZIP: 94306



Db 61 LQSFNLFYTEHSSAAWDTTLLLEQLCTGLQQLDHLDTCRGQVMEEDSELGNMDDPIVTV 120  
QY 121 KKYFGIYDYLQEKGYSCAWEIVRVMRALTSTTLLQKRLTKMGDLNSP 172  
Db 121 KKYFGIYDYLQEKGYSCAWEIVRVMRALTSTTLLQKRLTKMGDLNSP 172  
RESULT 9  
US-10-991-653-3  
; Sequence 3, Application US/10991653  
; Publication No. US20050147588A1  
; GENERAL INFORMATION:  
; APPLICANT: Liu, Chih-Ping  
; TITLE OF INVENTION: Methods for Treatment of Obesity and for Promotion of Weight Loss  
; FILE REFERENCE: 55600-8012.US01  
; CURRENT APPLICATION NUMBER: US/10/991,653  
; PRIOR FILING DATE: 2004-11-17  
; PRIOR APPLICATION NUMBER: US 60/523,077  
; PRIOR FILING DATE: 2003-11-17  
; PRIOR APPLICATION NUMBER: US 60/532,851  
; PRIOR FILING DATE: 2003-12-24  
; NUMBER OF SEQ ID NOS: 4  
; SOFTWARE: Patent in version 3.1  
; SEQ ID NO 3  
; LENGTH: 172  
; TYPE: PRT  
; ORGANISM: Artificial  
; FEATURE:  
; OTHER INFORMATION: Recombinant IFNTau Based on Ovis Aries Sequence  
US-10-991-653-3  
Query Match 100.0%; Score 907; DB 18; Length 172;  
Best Local Similarity 100.0%; Pred. No. 1.4e-88;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CYLSERLMDARENLKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKQAFPLVYEM 60  
Db 1 CYLSERLMDARENLKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKQAFPLVYEM 60  
QY 61 LQSFNLFYTEHSSAAWDTTLLLEQLCTGLQQLDHLDTCRGQVMEEDSELGNMDDPIVTV 120  
Db 61 LQSFNLFYTEHSSAAWDTTLLLEQLCTGLQQLDHLDTCRGQVMEEDSELGNMDDPIVTV 120  
QY 121 KKYFGIYDYLQEKGYSCAWEIVRVMRALTSTTLLQKRLTKMGDLNSP 172  
Db 121 KKYFGIYDYLQEKGYSCAWEIVRVMRALTSTTLLQKRLTKMGDLNSP 172  
RESULT 10  
US-11-078-608-3  
; Sequence 3, Application US/11078608  
; Publication No. US20050201981A1  
; GENERAL INFORMATION:  
; APPLICANT: Villarete, Lorelie H.  
; APPLICANT: Kirnon, Stephen N.  
; TITLE OF INVENTION: Method of Optimizing Treatment with Interferon-Tau  
; FILE REFERENCE: 55600-8014.US06  
; CURRENT APPLICATION NUMBER: US/11/078,608  
; PRIOR FILING DATE: 2005-03-10  
; PRIOR APPLICATION NUMBER: US 60/552,279  
; PRIOR FILING DATE: 2004-03-10  
; PRIOR APPLICATION NUMBER: US 10/824,710  
; PRIOR FILING DATE: 2004-04-14  
; PRIOR APPLICATION NUMBER: US 10/825,068  
; PRIOR FILING DATE: 2004-04-14  
; PRIOR APPLICATION NUMBER: US 10/825,382  
; PRIOR FILING DATE: 2004-04-14  
; PRIOR APPLICATION NUMBER: US 10/825,457  
; PRIOR FILING DATE: 2004-04-14  
; PRIOR APPLICATION NUMBER: US 10/884,741  
; PRIOR FILING DATE: 2004-07-02  
; SOFTWARE: Patent in version 3.1  
; SEQ ID NO 3  
; LENGTH: 172  
; TYPE: PRT  
; ORGANISM: Artificial  
; FEATURE:  
; OTHER INFORMATION: recombinant IFNTau based on Ovis aries sequence  
US-11-078-608-3  
Query Match 100.0%; Score 907; DB 20; Length 172;  
Best Local Similarity 100.0%; Pred. No. 1.4e-88;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CYLSERLMDARENLKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKQAFPLVYEM 60  
Db 1 CYLSERLMDARENLKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKQAFPLVYEM 60  
QY 61 LQSFNLFYTEHSSAAWDTTLLLEQLCTGLQQLDHLDTCRGQVMEEDSELGNMDDPIVTV 120  
Db 61 LQSFNLFYTEHSSAAWDTTLLLEQLCTGLQQLDHLDTCRGQVMEEDSELGNMDDPIVTV 120  
QY 121 KKYFGIYDYLQEKGYSCAWEIVRVMRALTSTTLLQKRLTKMGDLNSP 172  
Db 121 KKYFGIYDYLQEKGYSCAWEIVRVMRALTSTTLLQKRLTKMGDLNSP 172

; PRIOR APPLICATION NUMBER: US 11/040,706  
; PRIOR FILING DATE: 2005-01-21  
; NUMBER OF SEQ ID NOS: 4  
; SOFTWARE: Patent in version 3.1  
; SEQ ID NO 3  
; LENGTH: 172  
; TYPE: PRT  
; ORGANISM: Artificial  
; FEATURE:  
; OTHER INFORMATION: Recombinant IFNTau Based on Ovis aries Sequence  
US-11-078-608-3  
Query Match 100.0%; Score 907; DB 20; Length 172;  
Best Local Similarity 100.0%; Pred. No. 1.4e-88;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CYLSERLMDARENLKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKQAFPLVYEM 60  
Db 1 CYLSERLMDARENLKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKQAFPLVYEM 60  
QY 61 LQSFNLFYTEHSSAAWDTTLLLEQLCTGLQQLDHLDTCRGQVMEEDSELGNMDDPIVTV 120  
Db 61 LQSFNLFYTEHSSAAWDTTLLLEQLCTGLQQLDHLDTCRGQVMEEDSELGNMDDPIVTV 120  
QY 121 KKYFGIYDYLQEKGYSCAWEIVRVMRALTSTTLLQKRLTKMGDLNSP 172  
Db 121 KKYFGIYDYLQEKGYSCAWEIVRVMRALTSTTLLQKRLTKMGDLNSP 172  
RESULT 11  
US-11-040-706-3  
; Sequence 3, Application US/11040706  
; Publication No. US20050226845A1  
; GENERAL INFORMATION:  
; APPLICANT: Liu, Chih-Ping  
; APPLICANT: Villarete, Lorelie H.  
; TITLE OF INVENTION: Method of treatment using interferon-tau  
; FILE REFERENCE: 55600-8014.US05  
; CURRENT APPLICATION NUMBER: US/11/040,706  
; CURRENT FILING DATE: 2005-01-21  
; PRIOR APPLICATION NUMBER: US 10/884,741  
; PRIOR FILING DATE: 2004-07-02  
; PRIOR APPLICATION NUMBER: US 10/824,710  
; PRIOR FILING DATE: 2004-04-14  
; PRIOR APPLICATION NUMBER: US 60/552,279  
; PRIOR FILING DATE: 2004-03-10  
; PRIOR APPLICATION NUMBER: US 10/825,068  
; PRIOR FILING DATE: 2004-04-14  
; PRIOR APPLICATION NUMBER: US 10/825,382  
; PRIOR FILING DATE: 2004-04-14  
; PRIOR APPLICATION NUMBER: US 10/825,457  
; PRIOR FILING DATE: 2004-04-14  
; PRIOR APPLICATION NUMBER: US 60/552,279  
; PRIOR FILING DATE: 2004-03-10  
; NUMBER OF SEQ ID NOS: 6  
; SOFTWARE: Patent in version 3.3  
; SEQ ID NO 3  
; LENGTH: 172  
; TYPE: PRT  
; ORGANISM: Artificial  
; FEATURE:  
; OTHER INFORMATION: recombinant IFNTau based on Ovis aries sequence  
US-11-040-706-3  
Query Match 100.0%; Score 907; DB 20; Length 172;  
Best Local Similarity 100.0%; Pred. No. 1.4e-88;  
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 CYLSERLMDARENLKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKQAFPLVYEM 60  
Db 1 CYLSERLMDARENLKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKQAFPLVYEM 60  
QY 61 LQSFNLFYTEHSSAAWDTTLLLEQLCTGLQQLDHLDTCRGQVMEEDSELGNMDDPIVTV 120  
Db 61 LQSFNLFYTEHSSAAWDTTLLLEQLCTGLQQLDHLDTCRGQVMEEDSELGNMDDPIVTV 120  
QY 121 KKYFGIYDYLQEKGYSCAWEIVRVMRALTSTTLLQKRLTKMGDLNSP 172  
Db 121 KKYFGIYDYLQEKGYSCAWEIVRVMRALTSTTLLQKRLTKMGDLNSP 172

```
; CURRENT APPLICATION NUMBER: US/10/884,741
; CURRENT FILING DATE: 2004-07-02
; PRIOR APPLICATION NUMBER: US/10/824,710
; PRIOR FILING DATE: 2004-04-14
; PRIOR APPLICATION NUMBER: US 60/552,279
; PRIOR FILING DATE: 2004-03-10
; NUMBER OF SEQ ID NOS: 4
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
; LENGTH: 172
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: recombinant IFNtau based on Ovis aries sequence
US-10-884-741-3

Query Match      100.0%; Score 907; DB 17; Length 172;
Best Local Similarity 100.0%; Pred. No. 1.4e-88;
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYLSERMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLOKQDQAFPVLYEM 60
Db 1 CYLSERMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLOKQDQAFPVLYEM 60
QY 61 LQOSFNLFTYHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
Db 61 LQOSFNLFTYHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
QY 121 KKYFGQIYDYLQKGYSDCAWEIVRVMRALTIVSTTLQKRLTKMGDDLNSP 172
Db 121 KKYFGQIYDYLQKGYSDCAWEIVRVMRALTIVSTTLQKRLTKMGDDLNSP 172

RESULT 6
US-10-825-382-3
; Sequence 3, Application US/10825382
; Publication No. US20050118137A1
; GENERAL INFORMATION:
; APPLICANT: Liu, Chih-Ping
; APPLICANT: Villarete, Lorelie H.
; TITLE OF INVENTION: Method of Treatment Using Interferon-TAU
; FILE REFERENCE: 55600-8014.US01
; CURRENT APPLICATION NUMBER: US/10/825,382
; CURRENT FILING DATE: 2004-04-14
; PRIOR APPLICATION NUMBER: US 60/552,279
; PRIOR FILING DATE: 2004-03-10
; NUMBER OF SEQ ID NOS: 4
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
; LENGTH: 172
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: recombinant IFNtau based on Ovis aries sequence
US-10-825-382-3

Query Match      100.0%; Score 907; DB 17; Length 172;
Best Local Similarity 100.0%; Pred. No. 1.4e-88;
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYLSERMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLOKQDQAFPVLYEM 60
Db 1 CYLSERMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLOKQDQAFPVLYEM 60
QY 61 LQOSFNLFTYHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
Db 61 LQOSFNLFTYHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
QY 121 KKYFGQIYDYLQKGYSDCAWEIVRVMRALTIVSTTLQKRLTKMGDDLNSP 172
Db 121 KKYFGQIYDYLQKGYSDCAWEIVRVMRALTIVSTTLQKRLTKMGDDLNSP 172
```

```
RESULT 7
US-10-825-457-3
; Sequence 3, Application US/10825457
; Publication No. US20050118138A1
; GENERAL INFORMATION:
; APPLICANT: Liu, Chih-Ping
; APPLICANT: Villarete, Lorelie H.
; TITLE OF INVENTION: Method of Treatment Using Interferon-TAU
; FILE REFERENCE: 55600-8014.US02
; CURRENT APPLICATION NUMBER: US/10/825,457
; CURRENT FILING DATE: 2004-04-14
; PRIOR APPLICATION NUMBER: US 60/552,279
; PRIOR FILING DATE: 2004-03-10
; NUMBER OF SEQ ID NOS: 4
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
; LENGTH: 172
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: recombinant IFNtau based on Ovis aries sequence
US-10-825-457-3

Query Match      100.0%; Score 907; DB 17; Length 172;
Best Local Similarity 100.0%; Pred. No. 1.4e-88;
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYLSERMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLOKQDQAFPVLYEM 60
Db 1 CYLSERMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLOKQDQAFPVLYEM 60
QY 61 LQOSFNLFTYHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
Db 61 LQOSFNLFTYHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
QY 121 KKYFGQIYDYLQKGYSDCAWEIVRVMRALTIVSTTLQKRLTKMGDDLNSP 172
Db 121 KKYFGQIYDYLQKGYSDCAWEIVRVMRALTIVSTTLQKRLTKMGDDLNSP 172

RESULT 8
US-10-824-710-3
; Sequence 3, Application US/10824710
; Publication No. US20050142109A1
; GENERAL INFORMATION:
; APPLICANT: Liu, Chih-Ping
; APPLICANT: Villarete, Lorelie H.
; TITLE OF INVENTION: Method of Treatment Using Interferon-TAU
; FILE REFERENCE: 55600-8014.US00
; CURRENT APPLICATION NUMBER: US/10/824,710
; CURRENT FILING DATE: 2004-04-14
; PRIOR APPLICATION NUMBER: US 60/552,279
; PRIOR FILING DATE: 2004-03-10
; NUMBER OF SEQ ID NOS: 4
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
; LENGTH: 172
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: recombinant IFNtau based on Ovis aries sequence
US-10-824-710-3

Query Match      100.0%; Score 907; DB 18; Length 172;
Best Local Similarity 100.0%; Pred. No. 1.4e-88;
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CYLSERMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLOKQDQAFPVLYEM 60
Db 1 CYLSERMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLOKQDQAFPVLYEM 60
QY 61 LQOSFNLFTYHSSAAWDTLLLEQLCTGLQOQLDHLDTCRGQVMGEEDSELGNMDDPIVTV 120
```

```
QY 61 LQSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMEGEEDSELGNMDDPIVTV 120
; LENGTH: 172
; TYPE: PRT
; ORGANISM: Artificial
Db 61 LQSFNLFYTEHSSAAWDTTLLLEQLCTGLQOQLDHLDTCRGQVMEGEEDSELGNMDDPIVTV 120
; FEATURE:
; OTHER INFORMATION: recombinant IFNtau based on Ovis aries sequence
QY 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTVSTTLQKRLTKMGDDLNSP 172
; US-10-719-472-3
Db 121 KKYFGIYDYLQEKGYSDCAWEIVRVMRALTVSTTLQKRLTKMGDDLNSP 172
;
RESULT 2
US-10-683-214-2
; Sequence 2, Application US/10683214
; Publication No. US20040126360A1
; GENERAL INFORMATION:
; APPLICANT: Manning, Mark C.
; APPLICANT: Navar, Rajiv
; TITLE OF INVENTION: Oral formulations for proteins and polypeptides
; FILE REFERENCE: 55600-8014.US00
; CURRENT APPLICATION NUMBER: US/10/683,214
; PRIOR FILING DATE: 2003-10-07
; PRIOR APPLICATION NUMBER: US 60/417,292
; PRIOR FILING DATE: 2002-10-09
; NUMBER OF SEQ ID NOS: 18
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 2
; LENGTH: 172
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: recombinant mature ovine IFNtau, based on SEQ ID NO:1.
US-10-683-214-2
Query Match 100.0%; Score 907; DB 16; Length 172;
Best Local Similarity 100.0%; Pred. No. 1.4e-88;
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 CYLSERLMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKQAFPPVLYEM 60
; FILE REFERENCE: 55600-8014.US03
; CURRENT APPLICATION NUMBER: US/10/825,068
; CURRENT FILING DATE: 2004-04-14
; PRIOR APPLICATION NUMBER: US 60/552,279
; PRIOR FILING DATE: 2004-03-10
; NUMBER OF SEQ ID NOS: 4
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
; LENGTH: 172
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: recombinant IFNtau based on Ovis aries sequence
US-10-825-068-3
; Sequence 3, Application US/10825068
; Publication No. US20040247565A1
; GENERAL INFORMATION:
; APPLICANT: Liu, Chih-Ping
; APPLICANT: Villarete, Lorelie H.
; TITLE OF INVENTION: Method of Treatment Using Interferon-TAU
; FILE REFERENCE: 55600-8014.US03
; CURRENT APPLICATION NUMBER: US/10/825,068
; CURRENT FILING DATE: 2004-04-14
; PRIOR APPLICATION NUMBER: US 60/552,279
; PRIOR FILING DATE: 2004-03-10
; NUMBER OF SEQ ID NOS: 4
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
; LENGTH: 172
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: recombinant IFNtau based on Ovis aries sequence
US-10-825-068-3
Query Match 100.0%; Score 907; DB 16; Length 172;
Best Local Similarity 100.0%; Pred. No. 1.4e-88;
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 CYLSERLMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKQAFPPVLYEM 60
; FILE REFERENCE: 55600-8013.US00
; CURRENT APPLICATION NUMBER: US/10/719,472
; CURRENT FILING DATE: 2003-11-21
; PRIOR APPLICATION NUMBER: US/10/698,927
; PRIOR FILING DATE: 2003-10-31
; PRIOR APPLICATION NUMBER: US 09/910,406
; PRIOR FILING DATE: 2001-07-19
; PRIOR APPLICATION NUMBER: US 60/219,128
; PRIOR FILING DATE: 2000-07-19
; PRIOR APPLICATION NUMBER: US 10/346,269
; PRIOR FILING DATE: 2003-01-16
; PRIOR APPLICATION NUMBER: US 60/349,658
; PRIOR FILING DATE: 2002-01-16
; NUMBER OF SEQ ID NOS: 4
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
US-10-719-472-3
; Sequence 3, Application US/10719472
; Publication No. US20040191217A1
; GENERAL INFORMATION:
; APPLICANT: Sokawa, Yoshihiro
; APPLICANT: Liu, Chih-Ping
; TITLE OF INVENTION: Method of treatment using interferon-tau
; FILE REFERENCE: 55600-8013.US00
; CURRENT APPLICATION NUMBER: US/10/719,472
; CURRENT FILING DATE: 2003-11-21
; PRIOR APPLICATION NUMBER: US/10/698,927
; PRIOR FILING DATE: 2003-10-31
; PRIOR APPLICATION NUMBER: US 09/910,406
; PRIOR FILING DATE: 2001-07-19
; PRIOR APPLICATION NUMBER: US 60/219,128
; PRIOR FILING DATE: 2000-07-19
; PRIOR APPLICATION NUMBER: US 10/346,269
; PRIOR FILING DATE: 2003-01-16
; PRIOR APPLICATION NUMBER: US 60/349,658
; PRIOR FILING DATE: 2002-01-16
; NUMBER OF SEQ ID NOS: 4
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
```

```
; LENGTH: 172
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: recombinant IFNtau based on Ovis aries sequence
US-10-719-472-3
Query Match 100.0%; Score 907; DB 16; Length 172;
Best Local Similarity 100.0%; Pred. No. 1.4e-88;
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 CYLSERLMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKQAFPPVLYEM 60
; FILE REFERENCE: 55600-8014.US03
; CURRENT APPLICATION NUMBER: US/10/825,068
; CURRENT FILING DATE: 2004-04-14
; PRIOR APPLICATION NUMBER: US 60/552,279
; PRIOR FILING DATE: 2004-03-10
; NUMBER OF SEQ ID NOS: 4
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
; LENGTH: 172
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: recombinant IFNtau based on Ovis aries sequence
US-10-825-068-3
; Sequence 3, Application US/10825068
; Publication No. US20040247565A1
; GENERAL INFORMATION:
; APPLICANT: Liu, Chih-Ping
; APPLICANT: Villarete, Lorelie H.
; TITLE OF INVENTION: Method of Treatment Using Interferon-TAU
; FILE REFERENCE: 55600-8014.US03
; CURRENT APPLICATION NUMBER: US/10/825,068
; CURRENT FILING DATE: 2004-04-14
; PRIOR APPLICATION NUMBER: US 60/552,279
; PRIOR FILING DATE: 2004-03-10
; NUMBER OF SEQ ID NOS: 4
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
; LENGTH: 172
; TYPE: PRT
; ORGANISM: Artificial
; FEATURE:
; OTHER INFORMATION: recombinant IFNtau based on Ovis aries sequence
US-10-825-068-3
Query Match 100.0%; Score 907; DB 16; Length 172;
Best Local Similarity 100.0%; Pred. No. 1.4e-88;
Matches 172; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 CYLSERLMLDARENKLLDRMNRSLPHSCLODRKDFGLPQEMVEGDQLQKQAFPPVLYEM 60
; FILE REFERENCE: 55600-8013.US00
; CURRENT APPLICATION NUMBER: US/10/719,472
; CURRENT FILING DATE: 2003-11-21
; PRIOR APPLICATION NUMBER: US/10/698,927
; PRIOR FILING DATE: 2003-10-31
; PRIOR APPLICATION NUMBER: US 09/910,406
; PRIOR FILING DATE: 2001-07-19
; PRIOR APPLICATION NUMBER: US 60/219,128
; PRIOR FILING DATE: 2000-07-19
; PRIOR APPLICATION NUMBER: US 10/346,269
; PRIOR FILING DATE: 2003-01-16
; PRIOR APPLICATION NUMBER: US 60/349,658
; PRIOR FILING DATE: 2002-01-16
; NUMBER OF SEQ ID NOS: 4
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
US-10-719-472-3
; Sequence 3, Application US/10719472
; Publication No. US20040191217A1
; GENERAL INFORMATION:
; APPLICANT: Sokawa, Yoshihiro
; APPLICANT: Liu, Chih-Ping
; TITLE OF INVENTION: Method of treatment using interferon-tau
; FILE REFERENCE: 55600-8013.US00
; CURRENT APPLICATION NUMBER: US/10/719,472
; CURRENT FILING DATE: 2003-11-21
; PRIOR APPLICATION NUMBER: US/10/698,927
; PRIOR FILING DATE: 2003-10-31
; PRIOR APPLICATION NUMBER: US 09/910,406
; PRIOR FILING DATE: 2001-07-19
; PRIOR APPLICATION NUMBER: US 60/219,128
; PRIOR FILING DATE: 2000-07-19
; PRIOR APPLICATION NUMBER: US 10/346,269
; PRIOR FILING DATE: 2003-01-16
; PRIOR APPLICATION NUMBER: US 60/349,658
; PRIOR FILING DATE: 2002-01-16
; NUMBER OF SEQ ID NOS: 4
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
```

Result No.	Score	Query		DB	ID	Description
		Match	Length			
1	907	100.0	172	10	US-09-910-406C-4	Sequence 4, Appli
2	907	100.0	172	16	US-10-683-214-2	Sequence 2, Appli
3	907	100.0	172	16	US-10-719-472-3	Sequence 3, Appli
4	907	100.0	172	16	US-10-825-068-3	Sequence 3, Appli
5	907	100.0	172	17	US-10-884-741-3	Sequence 3, Appli
6	907	100.0	172	17	US-10-825-382-3	Sequence 3, Appli
7	907	100.0	172	17	US-10-825-457-3	Sequence 3, Appli
8	907	100.0	172	18	US-10-824-710-3	Sequence 3, Appli
9	907	100.0	172	18	US-10-991-653-3	Sequence 3, Appli
10	907	100.0	172	20	US-11-078-608-3	Sequence 3, Appli
11	907	100.0	172	20	US-11-040-706-3	Sequence 3, Appli